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COMPUTING INTERNATIONAL BUSINESS MAGAZINE
INCORPORATING AMIGA USER DECEMBER 1985

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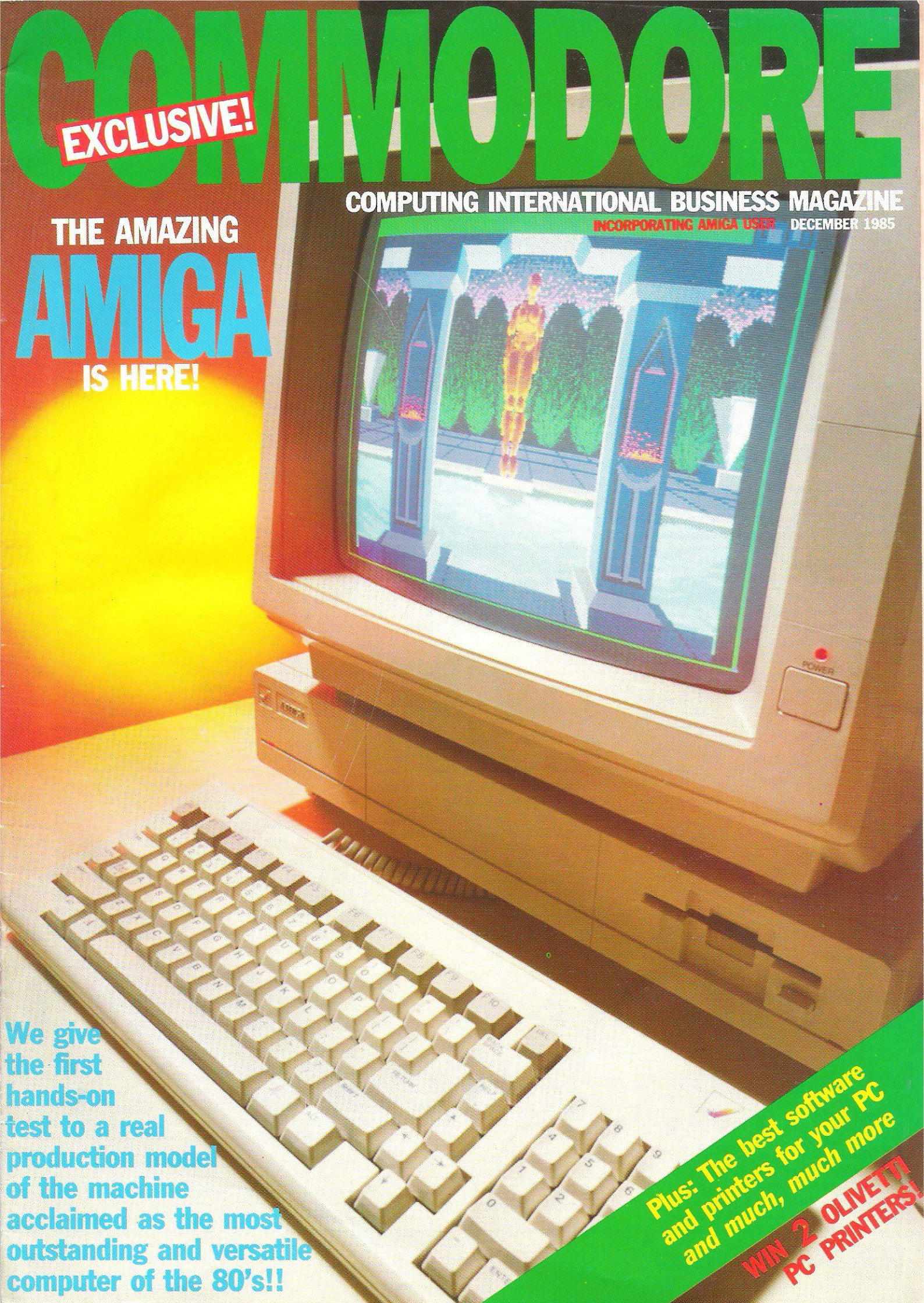

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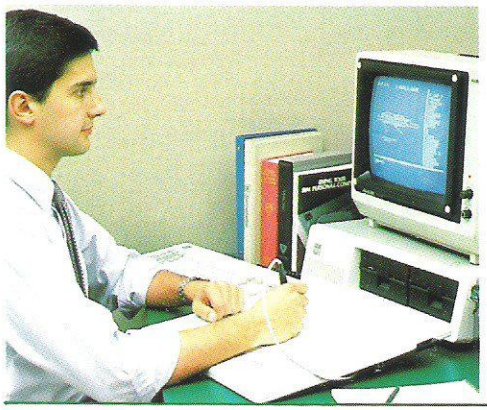

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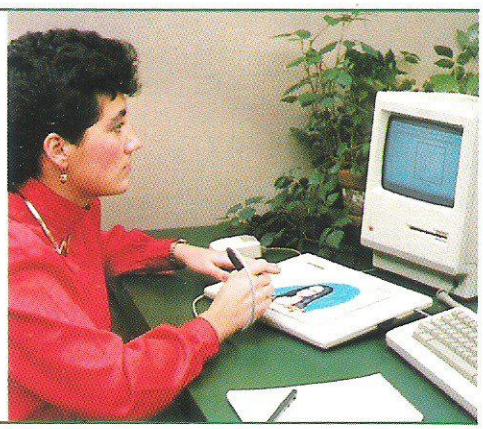

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Produced by Commodore Computing International on behalf of Croftward Ltd
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R 0NE
Tel: 01-278 0333
Typeset by Grassroots,
Distributed by Comag, Tavistock Road, West Drayton, Middx. UB7 7QE
Printed by Chase Printers Group, London and St. Austell.

Opinion...

Dear Reader,

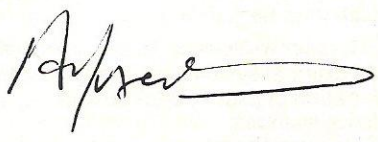
The cover of this issue of the Commodore Business Magazine with its photograph of the impressive Amiga symbolises what many regard as the new dawn in the computer age. It is, of course, no accident that we have included in the magazine title 'Amiga User' for we believe that the launch of Commodore's new machine marks a technical advance which will be felt across the whole 'desktop' computer arena.

The Amiga — the first, exclusive review of a production model appears in this issue — will offer businesses an exceptional machine at a price that only a short time ago would hardly have purchased a good 'home' computer. Yet Amiga's exciting range of abilities is substantially ahead of anything else in the field.

We believe that there will be an immediate and enthusiastic acceptance of this new, standard setting machine and that businesses will find it a valuable, cost effective, easy to use tool for many applications hardly approached even by the widely accepted but more expensive PC/MS DOS computers. We have therefore taken this decision to incorporate into this and subsequent issues of the magazine broad coverage of the Amiga and its potentially fast growing world.

Although at the time of publishing this issue of Commodore Business Magazine, only in the US is the Amiga available to the public, present indications are that Commodore will launch the machine for sale outside the US at the very beginning of 1986. We believe that this will become regarded as a development of significant importance to all who use, or are contemplating buying, a computer for 'personal' office use.

As they say in the publishing business, for further developments and the latest information on the amazing Amiga watch these pages...



Antony H. Jacobson
Publisher
Commodore Business Magazine and Amiga User

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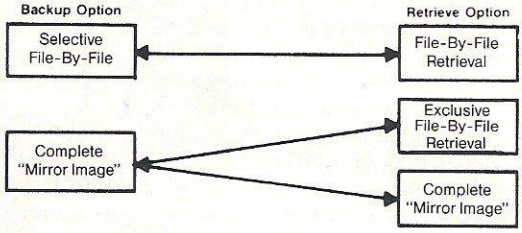

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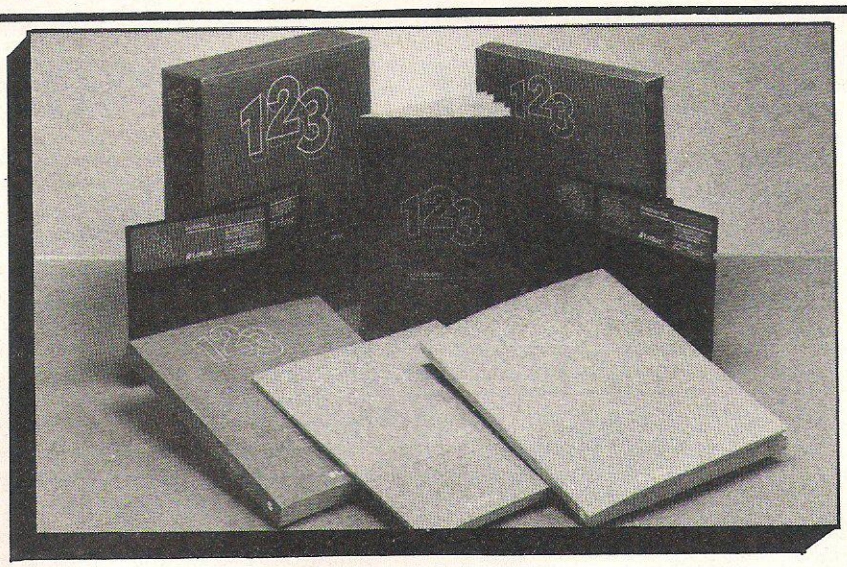


1-2-3 — Part 2

An enhanced version of Lotus' popular 1,2,3 software package is now available.

Following research among existing 1-2-3 users to discover what additional functions and features were required, Lotus has produced a faster, more efficient spreadsheet.

The worksheet is now four times larger than the original, now providing 256 columns × 8192 rows. Memory management enhancements allow more efficient use of the workspace and development of larger applications.

When used with memory boards to the Lotus/Intel/Microsoft Expanded Memory specification, 1-2-3 Release 2 is designed to address up to 4Mb ot RAM above 640K. Release 2 will also support the Intel 8087 and 80287 math co-processors giving greater speed for calculations, with complete file compatibility with 1-2-3 Release 1A.

Existing registered users of 1-2-3 can upgrade to 1-2-3 Release 2 for 140 for a limited period. Anyone who purchased 1-2-3 Release 1A after the announcement of Release 2 on April 24, 1985 will be entitled to a free upgrade, providing they have a dated proof of purchase. A handling fee of £25 will be charged to cover VAT, postage and packaging.

A companion product to 1-2-3 — 1-2-3 Report Writer — facilitates the creation of custom reports and forms using 1-2-3 data files. Compatible with both versions of 1-2-3, Report Writer costs £120 and is available from Lotus Authorized Dealers.

Contact: Lotus, Consort House, Victoria Street, Windsor, Berkshire SL4 1EX. Tel: 0753 840281.

dBase Products now for UK market

Europe's leading distributor of business software, Software Ltd., has been appointed the first European distributor for Fox & Geller's range of dBase-II and dBase-III enhancement products.

Two products in the range have not previously been seen in Europe. Quickreport, selling at £220, supports dBase-II, dBase-III and Lotus 1-2-3 users providing a fast report generating facility using information from up to six files. Reports can be produced up to 255 columns wide on any printer.

Quickindex is a utility program for dBase-III users only, and is a high speed indexer. Available at £115, this program is useful for indexing large databases whether running with dBase-III or as a stand-alone. It indexes up to 10 times faster than dBase-III.

The other products in the range are: Quickcode II and III program and application generator (£222), dGraph II and III graphics system (£222), and dUtil II and III programming utility (£79).

Contact: Software Ltd, Alice Owen Technology Centre, 251 Goswell Road, London EC1 7JQ. Tel: 01-278 2377.

Slaves to be distributed

Advanced digital's PC Slave range of products is now to be distributed by PC Upgrade — one of the leading IBM PC and compatible hardware add-on distributors in the country.

With the PC Slaves, the PC-10 and PC-20 can be upgraded to multi-user systems without any degradation in processing speed nor with any additional software cost. Up to 32 slaves may be used on one slave driving PC.

Train before going 'live'

The 'learn as you go' policy of training staff to use a business computer often results in costly mistakes.

It makes good business sense to provide proper training at the beginning. Acorn Business Services offers training programs conducted on your own premises.

Complete training is offered using your machine and software. A course lasting around five days covers the following programs: Sales Ledger, Stock Control, Payroll, Sales Invoicing, Purchase Ledger, and Nominal Ledger.

Alternatively, Acorn Business Services offers training programs of one day duration on any of the above programs.

Contact: Adrian G Faulkener, Acorn Business Services, 13 High Street, Bridlington, East Yorkshire, YO16 4PR. Tel: 0262 673798.

Low-cost Integrated Package

INTUIT is the name of Tashkl's fully integrated software package, compatible with Commodore PC's, priced at just £145.

Substantially cheaper than comparable products, Intuit integrates word processing, spreadsheets and file management, providing a powerful and easy-to-use tool for the business professional.

Free movement between applications is allowed with one keystroke. Explanations are available at any stage using Intuit's unique 'Explain' key.

In addition, to expected features, the word processor has a formatting function which creates an outlining structure that provides numbered headlines allowing the user to enter a text file at any level.

Intuit's spreadsheet even creates the bottom line if you haven't set it up and will also generate a spreadsheet from a database record.

The database allows records to be added to a file by entering data in the form of a letter and also serves as a mailmerge facility for the word processor.

Intuit's directories are not limited to DOS file names, each may use up to 67 characters in length and each directory can hold up to 4,000 entries, limited only by disk space.

Contact: Tashkl Computer Systems, 24 Logan Road, Wembley, Middlesex HA9 8PX. Tel: 01-904 4467.

Plant's Plans For Business

Business Sales Manager Mark Plant discusses his plans to re-establish Commodore firmly in the business market

"The end-user has now learnt not to trust discount houses selling a 'box with a piece of software strapped on top'," says Mark Plant. "If you want to put your business onto a machine, you need somebody to understand both the computer and the business."

The sales policy of box-shifting is one that Plant certainly will not be promoting in his role as Commodore's National Sales Manager for Business Systems.

Plant joined Commodore in the summer following three years with ACT building up to the position of European Sales Manager, and working briefly with Sperry.

"With regards to support, I could spend a great deal of money in terms of marketing on the product and still not achieve the notability of IBM or ACT.

"I'm trying to sell the PC's as an application deal," says Plant. "A different type of support is required for that.

"If you are box shifting all you need is to spend 'x' amount promoting end user awareness for the name. What I am trying to do is make better use of the budget in promoting a solution."

He continues, "By doing that I am encouraging vertical markets, applications solutions. The PC is sold as part of a system."

"PC — a building block in business systems"

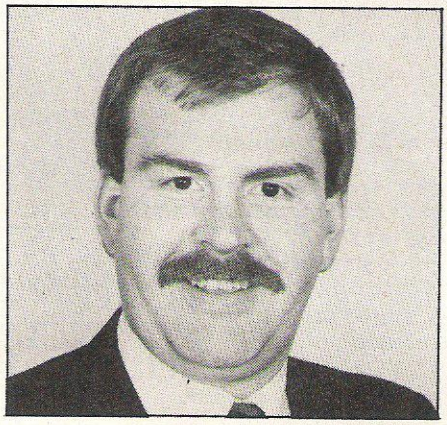
Agreeing that Commodore launched the PC a little late into the market, Plant says: "It is there as a building block. Commodore was committed to re-establishing itself in business systems and that doesn't just mean PC's. The PC10 and PC20 were the obvious offering to re-enter the system. From them, we are building towards the Amiga."

Another benefit resulting from the distribution of the PC's is that Commodore have built up a network of Business Centres which they know will offer a good standard of knowledge and service.

Quality outlets are essential, in Plant's view, for a high quality product such as the Amiga.

He says: "What the Amiga is, in terms of development, is a super tool kit. An analogy would be that such a product would provide more than half the hardware stock for a carpenter."

Despite his own confidence in the Amiga, Plant was amazed at the reaction to the machine at its US launch in July. He says: "I tend to be sceptical, but to survive as a dealer in the States you have got to be tough. At the US launch I saw one thousand hard-nosed American dealers. They were shown the Amiga's graphics capabilities and the sound and they got very excited about the machine. I've never seen Americans react in that way."



The Amiga was also shown to a select audience of press and key dealers during the PCW show. "The reaction there was overwhelming and that's an understatement," says Plant. "There was a great deal of excitement."

"Amiga — an attractive proposition for anyone"

From a marketing point of view the Amiga is going to be promoted as a business machine, but because of the technology and features offered, it will be an attractive proposition for anyone interested in computers.

Plant says: "I don't see it as a 64 games machine. I know a lot of people in the industry who work on PC's that have a machine at home. They like programming and the Amiga is a total offering for them.

He continues: "68000 offers the right development language, the right speed, the right graphics, the right sound capabilities... anybody interested in developing stuff with the machine and enjoy experimenting would love the Amiga."

Software houses have also expressed great interest in the Amiga. At present they are limited by industry standards. The Amiga offers software houses the opportunity to use their imagination and creativity.

"Personally," says Plant, "If I was going to buy a machine for the home, I would buy an Amiga. I would buy it for both home and business uses."

Plant believes that the Amiga will certainly make an impact on the PC market, but emphasizes that it is not a replacement for the PC. "I think Commodore have been very clever and astute by making the Amiga IBM PC compatible with the add-on disk drive," says Plant. "It is always difficult to launch a new machine into the market place," he continues. "Particularly with a new operating system, no matter if it's better.

"Anybody looking to buy a new computer would take into consideration their existing hardware. With IBM disk compatibility, anybody with a PC can use the data from that on the Amiga. It makes sense. We accept that we need to market for people to upgrade.

"Amiga recognises many people have PCs"

"I need a system that is functional. Apple produced the Mackintosh — it didn't bear relation to the market place. The Amiga recognises that a lot of people have PCs."

Commodore plans to release the standard Amiga in the first quarter of 1986. After that will come a multi-user version.

So what happened to the 900 multi-user, multi-tasking machine Commodore was due to launch in November?

Plant says: "As we launched the Amiga in the States in July, the 900 woud have been completely overshadowed.

"The 900 has been designed as a low-cost, multi-user system. It isn't designed as a state of the arts multi-user system.

Commodore are still totally committed to multi-user systems. There is a market there for networking and multi-user," he continues.

"Commodore is going by a commitment to build a family of systems. A network version of the Amiga is currently being developed in America. Commodore will be offering a multi-user machine, the decision to be made will be which one, or both."

Plant foresees nothing more than the usual launch problems with the Amiga. The machine was launched in America with a variety of software programs, predominantly business. It was also launched with a range of add-ons such as the 20Mb hard disk, plus its own magazine.

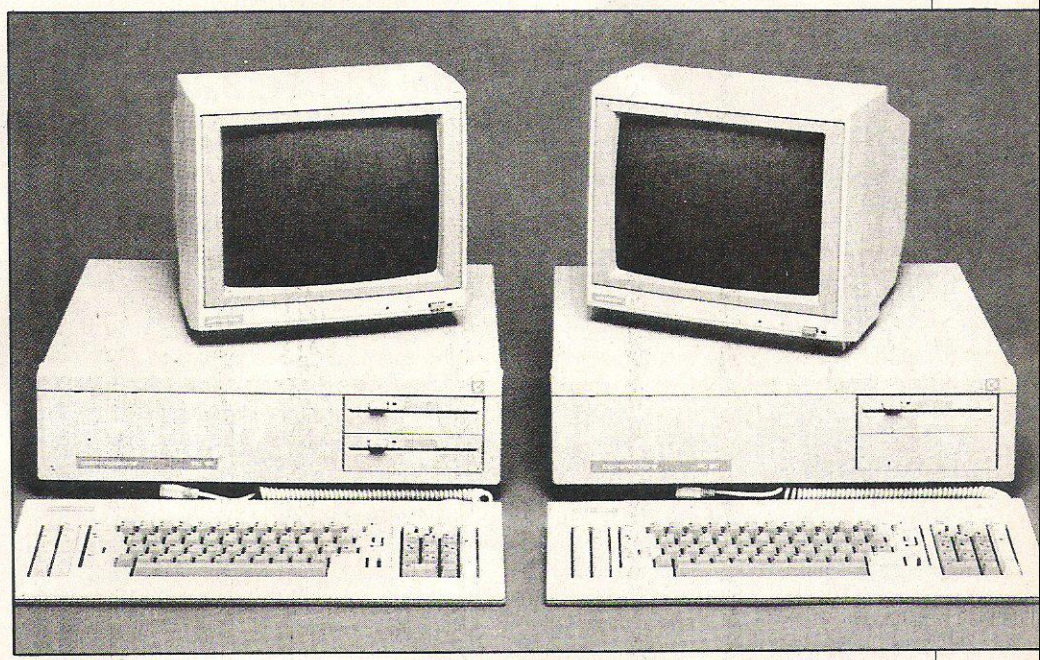
"It is indicative of Commodore's new approach to the market place," says Plant.

He continues: "If we launch a product as unique as the Amiga, I can't promise ten thousand programs but a wide variety.

"I think that, quite uniquely, we have put together a development package — machines, support, opportunities. We are going to do it properly."

"To date the personal computer has been sold to the relatively computer literate and specifically to those people who have an identified full time need i.e. secretaries using word-processing and analysts using spreadsheets. The real challenge facing the micro-computer industry is to tap the market of the computer illiterate — particularly the executive who is not familiar with the keyboard, cannot devote much time to learning the system, and has a requirement for rapid access to local and remote databases and integrated applications."

Wharton Information Systems
The UK Personal Computer Market Report 1985*



The PC10 and PC20 give each other a long, hard look

In 1985, Personal Computers in offices in the UK will double, according to an important survey carried out by Wharton Information Systems, from 250,000 to 500,000. In the next five years, to 1990, the total number of PC's installed will reach three million and expenditure will rise to some £6 billion a year. This may sound a huge amount but, in Europe as a whole, we spent more than $3 billion on electronic keyboard devices in 1984 which is up from just $200 million in 1980.

The survey is thought to be the largest yet conducted in the UK. It covers machines costing £2000+, with 16 or 32 bit processors, a standard operating system, high resolution monitor and letter quality printer.

The survey may itself be a victim of the rapidity of change in the computer world, for prices have fallen very recently and the standard cost of a machine of this level may have been reduced by as much as 25%. However, the survey provides interesting evidence that far from there being universal enthusiasm for the PC, the market is largely vendor-driven; purchasers are often confused by the variety of choice and speed of improvement to machines. So it is often marketing that proves the key to the buyer's pocket.

Nevertheless, it is clear from another authoritative survey in this field, Context Business Micros Information Service*, many advertising campaigns are more likely to set the prospective buyers' teeth on edge rather than whet the appetite for a new machine.

It seems that Context found that only Compaq's John Cleese campaign gets clear approval. IBM's Charlie Chaplin receives some applause but campaigns like Ericsson's baby (only 7% liked it) and Olivetti's Mr Men (14% liked it) probably do more harm than good.

Although scare stories give the impression that there has been a major fall in the PC market, in fact what is really happening is a reduction in the rate of increase of PC sales. For example, 1985 may be only about 2% above 1984, which itself however was a boom year. Yet 2% is still an increase. The slowing in the US may well have taken place because there most businesses that could justify buying today's technology have already done so, but this is by no means true in other countries. With the next generation of machines, such as Commodore's Amiga, providing more powerful and helpful operating systems and sophisticated graphics and sound, there will undoubtedly be a further series of waves of buying.

Shared Machines

One of the interesting facts to emerge is that around 80% of the machines in use are shared, generally used by more than one person. Frequently a machine purchased for and nominally allocated to an executive is given more use by his secretary, generally for word-processing. Word-processing, which fails by a long way stretch capacity of most PC's, is easily the application most in use. This is ironic in that word-processing could often be carried out on intelligent electronic typewriters without going to the greater expense of a PC. However, status factors, it seems, are increasingly demanding that an executive at least *appears* to have familiarity with and access to a PC.

Word processing is followed by spread sheet/accounting and then database applications as the next most popular uses.

"To date the personal computer has been sold to the relatively computer literate and specifically to those people who have an identified full time need i.e. secretaries using word-processing and analysts using spreadsheets. The real challenge facing the micro-computer industry is to tap the market of the computer illiterate — particularly the executive who is not familiar with the keyboard, cannot devote much time to learning the system, and has a requirement for rapid access to local and remote databases and integrated applications."

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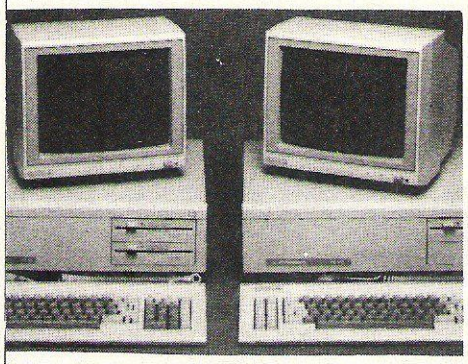


An interesting fact is that buyers make more use of word-processing and spreadsheet facilities than they think they will when they purchase a PC. Indeed, more PC's are installed primarily for word-processing than there are dedicated word-processing machines.

Some 35% of PC buyers also acquire a database package but only one in 10 of them seems to have been able to implement it successfully. Is it because database applications appear to need the extra level of time and practice that many executives are unable or unwilling to apply?

This point may also be supported by the evidence that although most PC owners are generally satisfied, even happy, with their new systems, there was general criticism of the level of support provided by the manufacturer's manuals and by dealers.

IBM take the trouble to advertise their dealers and their assumed expertise and Commodore is well aware of this problem, too. It is setting out to overcome it by establishing a network of Commodore Business Centres which will be able to support customers to a much higher degree than is usual in the PC field.

The demand for this level of support casts some doubt on the 'shop front' computer store concept as applied to business. It seems that most businesses see their dealer as not just selling them supermarket style but providing ongoing training, service and attention. This may even more greatly emphasised as PC's in the future will probably appear at two levels. The first, similar to the machines now on the market, low in price and relatively unsophisticated technically and in application. These basic intelligent workstations will be used for clerical purposes and by professional users with specific tasks; accounts for example. They will be machines of the present calibre of power and speed levels but prices will fall probably quite quickly to below the $1000 mark.

The second type of PC to emerge will be altogether more advanced and complex in technical capacity but increasingly user-friendly. It will probably be 32 bit with more than 1 million bytes of memory. It will also incorporate such extras as electronic mail and other communication applications. It will be multi-tasking, multi-user, possibly employing the Unix system, or more likely an improvement on that which is yet to be launched. They will also form part of local or office networks. Prices will probably not rise from present levels but greater applications will be built in with the increasing power, speed and sophistication available.

The Real PC Battle

The Wharton survey comments that experts in the field are convinced that the real sales battle for the PC has not yet started and will not until they 'can handle unstructured data'; information that needs no expertise to feed into the system.

For real use, in addition to accepting 'everyday' language, it must ensure that line managers have access to a range of databases:- budgets today; last week's sales tomorrow; followed by factory production; personnel; salesman productivity at the weekend etc. This is technically possible with today's equipment because it is important to know how and when each database was compiled, the data dictionary must be displayed etc.

When this can be done easily the PC market will expand substantially because there are at least 20 million line executives who must be considered potential users for such a system in Europe.

However, it appears from the few controlled experiments that have been measured so far that to extract the maximum from such a PC system will require some radical changes in most organisations. Reporting levels will be altered, often accompanied by elements of redundancy among junior and middle management whose present responsibilities include receiving raw information, checking it, re-assembling it and submitting it to the more senior members of staff — sometimes with recommendation for action. These effects may be visible even over the next five years.

While hardware sales will rise substantially, for software, the outlook appears positive but less clear. Products like Lotus 123 and Pegasus have contributed substantially to the spread of the PC. Sensibly, businesses have begun to appreciate that it is not the possession of a PC but the uses to which it can be put that are the key to the purchase decision. However the Wharton survey indicates that with 'windows' between which data can be moved, integrated suites of business software and other enhancements which are constantly appearing, the trend may have "gone as far as is particularly beneficial to the user"

Not Business Orientated

One problem is that software houses seem not to be so much business as research or innovation orientated. The young, technical, high-flyers like Garry Kildare of Digital Research and Bill Gates of Microsoft have not lasted the course in development of new and successful products. The major software supplies for the PC market have been categorised as 'one product wonders' with meteoric sales for their first software product but less ability to bring to the market successful follow-on products. There is, too, a problem for distributors and dealers as increasingly sophisticated products at lessening prices also require higher levels of customer support.

Extra support will be vital in assuring the potential market of the advisibility of the new PC's.

Within a company, purchasing a PC, the cost of training and support can be the most expensive factor of installing a PC system, particularly in the first year. It could well exceed the actual cost of the hardware. A maintenance contract can cost around £250 a year in the UK and it is estimated that the annual supplies for a machine amount to £170 per machine. This, of course, can provide valuable revenue for efficient dealer organisations.

It is interesting that estimate for the total revenue from software and support activity for 1990 is at $3 billion per year for the UK, above that of estimated hardware sales of $2 billion annually. However the total, for all the PC market sales, approaching £6 billion a year is in itself a phenomenal 10 times rise on the amount spent in 1984. This means that in the UK alone the equivalent of about twice as much as the National Health Service costs, about half as much as the total the government currently borrows per year will be spent on PC's and their support; and that does not include the internal costs to companies installing them. Whatever one may think about the PC and its real value to business, those are staggering figures and the financial effect alone will certainly be significant as a factor in the UK economy and that of all developed countries.

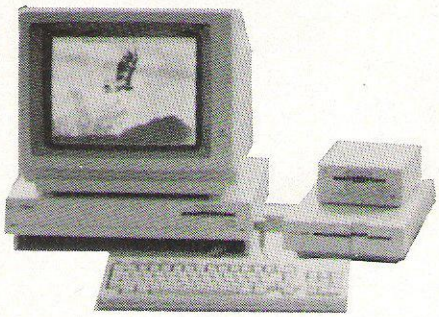
Anthony Mael

**The UK Personal Computer Market 1985-£650 — Wharton Information Systems Telephone 01-940 7366*

* Context */Business Microcomputer Information Service-£350 — Telephone 01-938 2151*

Amazing Amiga!

Is this the machine to end them all? Turn the page to find out... Francis Jago reviews Commodore's new machine.



To say I was excited at the prospect of an exclusive, comprehensive look at the Amiga would have to be the biggest understatement of the year. Having seen the Amiga three times previously, twice courtesy of Metacomco, authors of AmigaDos and Abasic, and once at the press launch during the PCW show; I knew enough about the machine to make any effort to get closer.

Technically, a great deal has been written about the machine, and, as you can see from the specification, it is very, very impressive. Even so, it is the exciting use of specific graphics and sound chips which elevates the Amiga to a position unparalleled amongst personal computers.

Daphne, Agnes and Portia, as they were codenamed, are co-processors which, when the Amiga is up and running, relieve the main 16/32 bit 68000 processing chip of many tasks which would otherwise considerably slow down the overall running speed of the computer. This includes control of all the graphics animation, disk input/output, sound generation, screen display, and the mouse keyboard polling.

Utilising 25 very clever DMA (direct memory access) channels, these chips leave the main 68000 processor free to process multiple numeric calculations. In practice this means that the computer can be using four sound channels, displaying a sixteen colour lo-res screen and retrieving and depositing information on the disk drive; all while the 68000 processor is still running at 7.4Mhz.

For your money (expect to pay around £1200) you will get the Amiga, a full travel detachable keyboard, a two button cabled mouse, and a single built-in 3.5inch disk drive. On the technical side it comes with 256k useable RAM, as well as 192k of ROM. The disk drive is an 880k double sided, double density drive, and the Amiga is capable of handling four other external 3.5 or 5.25inch drives.

Graphically the Amiga has four modes, 320 × 200, 320 × 400, 640 × 200 and the highest resolution 640 × 400. You have a palette of 4096 colours to choose from, though they are not all available at once in the highest resolution modes.

As well as the now ubiquitous joystick ports (one of which is used for the mouse), the Amiga has a wide variety of I/O devices which should allow almost any peripheral desired to be attached.

With a machine of the Amiga's capabilities, expandability is also of the utmost importance, and well hidden at the front is an expansion port for additional RAM. At the moment Commodore have a 256k plug — in cartridge, but theoretically up to eight Megabytes of extra RAM could be added. In practice, however, price and plausability will make this unrealistic.

Perhaps the most important single feature of the Amiga, and one which so far has only been associated with machines many times the price, is its true multi-tasking abilities. By using the 68000 chip, and the Tripos based operating system, now called AmigaDOS, almost unlimited functions are available, and one of the most pleasurable functions is that whatever you are doing, in whatever mode — whether you are developing a spreadsheet or playing a game — you can jump back to the CLI (command line interpreter), and issue a separate group of commands to allow the machine to carry out a new task.

Graphics

It's very difficult to stop praising the Amiga for its amazing overall performance, but it will be the graphics that will recommend it to a large audience. For the professional user who wants to link graphics and data to display forecasts, it will be ideal. Perhaps the greatest scope for use is in the field of design or architectural layout, and I'm certain that few will find themselves in any way limited by the Amiga's capabilities. Although there is a palette of 4096 colours from which to choose, only a certain amount of colours can be displayed on screen in any mode. In the lowest resolution, 320 × 200, sixteen colours are available, and in the highest resolution, 640 × 400, four colours are useable. This may sound minimalistic, but employing various software screen updating methods, other colours are available. Indeed, I have seen a demo which shows all (I took their word for it!) 4096 colours on screen at once. Furthermore, using interlacing methods, the vertical resolution of any mode can be doubled.

Animation is another speciality of the Amiga. There are eight sprites, 16 pixels wide and as high as you want; all of which are reuseable again and again on the same screen. More important however are the BOBs: these are 'Blitter Objects', and are the key to an amazing world of true smooth animation. BOBs consist of data from memory, transfered to the screen and constantly updated, fast enough as to give the impression of smooth animation. Having seen a demo of this called 'Robot City', I can vouch for the fact that it is far superior to normal sprites.

As CCI's exclusive screen shots show, the Amiga is capable of some amazing graphics, on a par with machines such as Tectronix dedicated graphics terminals — **yet at a fraction of the cost.** Using the wide variety of graphics programs which are currently being written, it should be possible even for an amateur to produce pictures, or if desired, animation, unlike anything seen on a personal computer before.

Sound

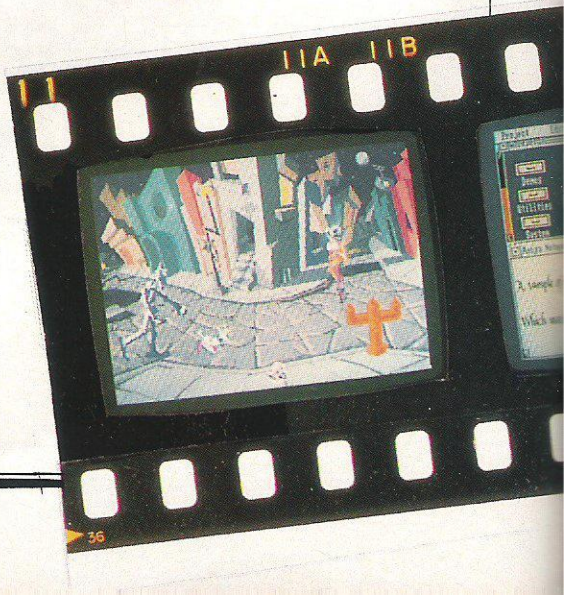
As well as producing outstanding graphics, the Amiga can produce stereo sound equal in quality to dedicated synthesisers of the £1000+ bracket. By having incorporated Fairlight CMI data compatability, it means that, effectively, the Amiga is assured of a position in sound studios, where its cost will seem minimal compared to the £30,000 of the Fairlight synthesiser!

The Amiga can also duplicate multivoiced sounds on any one of its four individual sound channels. Having heard the depth and variations available from the sound chip, I can assure you that, with careful programming, some outstanding results can be achieved.

As well as using the normal functions of the sound chip, you can use the envelope generator or wave-form adaptor to produce sound suitable to specific applications. Perhaps the most impressive function of the sound chip is the speech synthesis. Unlike anything I have heard before, it allows you to change any of the variables of the voice, meaning you can add expression and variation to a voice purely through easily adaptable software. Both male and female voices are catered for, and the possibilities for educational and professional applications are endless — literally.

Basic

During the confusing build up to the launch of the Amiga, Microsoft were commissioned to produce a Basic for Amiga; when it became apparent that they would not be able to produce it for the release date, however, Metacomco



dived in, and it's their basic that comes with the machine.

Metacomco's basic has come in for quite a lot of criticism from our American counterparts, but in my view this may be more to do with the fact that the company is small and British, rather than large and American. Perhaps the only real problem that I saw was the lack of a Screen Editor. Not only is this very surprising, but it makes using the basic to its full extent annoyingly laborious. Metacomco have, however, stated that they will be including one in later versions.

Otherwise the basic is fast enough to allow almost flicker-free animation, and shows some real potential for the user who is not willing to delve into 68000 code, yet wants to make the most of the machine's potential.

As well as seeing the Metacomco basic, I saw probably the first preview of Microsoft's Amiga basic. However, as there was no documentation with the disk, all I can say is that it is very odd! A pre-production version it may have been, but no line numbers whatsoever!? One bench test I managed to do comparing the Microsoft Amiga basic to Microsoft GWBasic (as on the Commodore PC), was to count the prime numbers from 1 to 8910. Surprise, surprise! The Amiga was more than four times faster, finishing the test in just under one minute. I should soon be able to bring you a head to head comparison of the Metacomco and Microsoft basics.

Compatibility

Generally rumours in the computer press are ten-a-penny, (remember the colour Macintosh?); and the biggest one surrounding Amiga was the suggested software compatibility with the IBM PC.

I can now clear these up once and for all. I have seen Lotus 1-2-3 up and running on the Amiga. Using a dumb 5.25 inch drive and having loaded a version of MS-DOS into the Amiga from 3.5inch drive, it seemed to have no difficulty whatsoever. This will come as a very pleasant shock to people who want to upgrade to a cheaper machine (eh?). Commodore are eager to point out however that they have had to 'slow down' the running of the machine to let it process at IBM speeds.

Although this is a quite astonishing feat, it must be emphasised that there is very little point in only using the Amiga as a PC compatible. When a full range of Amiga software becomes available it will be of a far superior quality to that of the PC; faster, easier to use, and more powerful. PC compatibility is designed to allow Amiga users to fit in with other people, not as a substitute language.

Software

When purchased the Amiga will come with bundled software, including AmigaDOS, Basic, and some neat utilities. Currently it is almost only American software houses that are producing software, using development 'black-boxes'.

The few pieces of software I have seen, including the entry level word-processor — TextCraft — have all been very impressive. Wordcraft, although designed only for home/small business use, seems amazingly comprehensive, allowing you to design pages, choose separate fonts, and a huge variety of other options, all using the mouse.

Metacomco have already finished their Amiga Lisp and Amiga Pascal, both of which are extremely impressive looking packages for the serious user. Lattice C, one of the most powerful computer languages currently available, is up and working on the Amiga — though I have yet to see a finished version.

Island graphics have four separate graphics packages ready, one of which allows even the total novice to design some quite extraordinary animation; up to a level normally associated only with experienced machine code programmers.

ECA, an American house known mainly for games, has converted most of their successful Commodore 64 titles, and added a couple of very impressive new ones. If the Amiga gets a good supply of high quality games, it could be the first time that a computer version of an arcade game is graphically superior to the original.

Many people have said that at around £1500 including a monitor, the Amiga cannot be considered a games machine, indeed that would be wasting its capabilities. In some respects I agree: the Amiga is indeed capable of more productive uses, but especially in America, where the £3000 Macintosh is considered a home micro, people will undoubtedly buy games for it; and I see no harm in using the outstanding graphics and sounds of this machine to have that kind of fun.

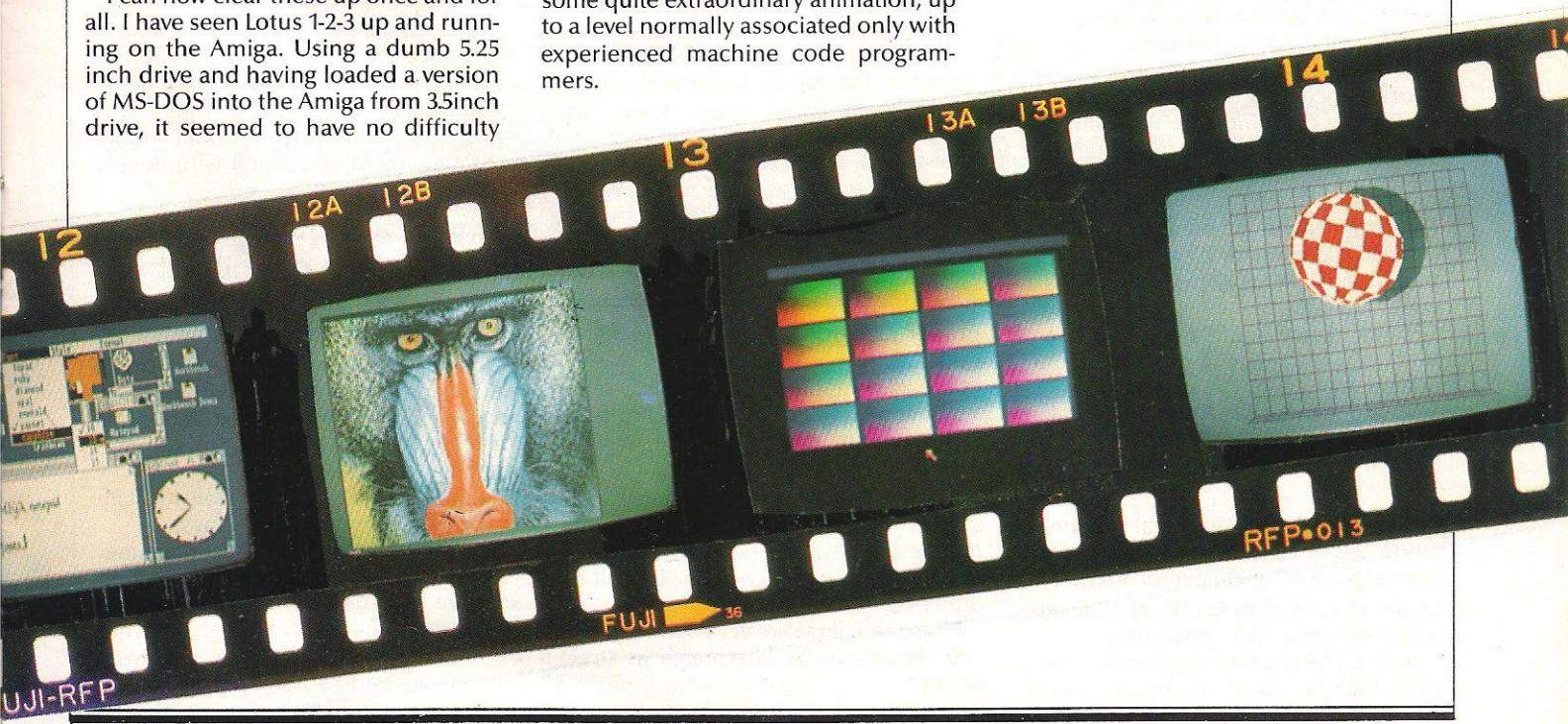
Conclusion

It is extremely difficult to sum up briefly my views of the Amiga. It is a machine unparalleled in price and performance, and it has almost everything that any user could ever want. Tecmar, an American company, have produced a 20 megabyte hard disk and a 1 megabyte RAM add-on in one package for under $1000, and if other companies follow suit it should lead to **a computer which will not follow but set new standards.**

The Atari 520st, a machine by some compared with the Amiga, is designed for a different group of purchasers. If you can afford to buy an Amiga, the Atari will pale into insignificance; and if you can't afford to buy an Amiga — save!! Save!!

To describe the Amiga as anything except amazing would be an understatement. Commodore are laying a lot on

Continued on next page



the line with the Amiga. At first glance the Amiga might seem to be priced too high for the home and educational market, and too low for the business sector. In fact, the Amiga is a state of the art machine. It comes as a system of such power that it will take years before anyone totally exploits it. You will not have to add hundreds of pounds of extras to make the most of the machine, just a little dedication.

At first, I thought Amiga (Spanish for 'girlfriend') was an odd name for a computer, but it is the only time I've ever experienced love at first sight!

Even had you never used a computer before, experience the Amiga and you will recognise at once that something far out of the ordinary has been created — a computer that will have a profound effect on many aspects of your everyday world. FKJ

Contact: Commodore UK Ltd, 1 Hunters Lane, Weldon, Corby, Northants NN17 1QX. Tel: 0535 205555.

Development Packages

For the benefit of software houses — and there must be many that would be interested in the extensive business opportunities that the Amiga offers — we thought it of considerable interest to include the specifications for the special development packages which Commodore are prepared to supply to professional organisations who wish to develop software for the new machine.

System Details

System 1:
A1000 Amiga CPU
A1010 external 3½ inch disk drive
A1050 256K RAM extension pack
A1070 RGBA colour monitor
System disks which include Kick Start, Work Bench and Amiga DOS
Utilities which include the Lattice C Complier, 68000 Macro Assembler, Linker and an IBM development environment.
Full technical documentation, including Amiga DOS manual, Workbench/Intuition Manual, ROM Kernal manual, hardware manual.
System 1 price — £1776.66 (inclusive of VAT)

System 2:
System 1 without the A1070 RGBA colour monitor
System 2 price — £1399.27 (inclusive of VAT)

Alternatively the technical documentation will be available separately at a cost of £219.47 (inclusive of VAT).

Optional extra peripherals, etc, include:
A1020 external 5.25" disk drive
I-card multifunction expansion card: 2MB external RAM, additional serial, printer or hard disk interface ports.
I-disk 20MB hard disk unit.
I-tape 20MB tape back up unit.
I-modem A 2400 baud, Hayes Protocol, US standards modem.
AC150 colour ink jet printer.

General prices for these optional items are not yet available. However, if any are required to develop specific applications details of prices and availability will be obtained.

Please note these are development prices and should not be interpreted as street prices:-

Marketing the Amiga

UK Marketing Manager Chris Kaday explains how Commodore intends to spread the word about Amiga

"When is the Amiga going to be launched?" is the question on the lips of many. Kaday confirms that it will be during the first quarter of 1986. His reply to a prompt for a more specific date is: "We anticipate the product being on display at the Which Computer Show" — held in Birmingham's NEC during January.

The trade will have the opportunity to size-up the Amiga at Compeq in November. Kaday says: "We are running a parallel event at Compeq where the Amiga will be shown to trade people — dealers, software houses and corporate people."

A European Software Development Conference is planned to run for four days from 1 December. This is an event that will also be attended by those involved with the Amiga in America.

"Interest in the Amiga is significant"

"Before that," says Kaday: "The machines are being shipped to software houses. Something like 200 software houses are currently interested and that number is building all the time. The interest in the Amiga ia certainly significant."

He continues: "Once again we believe that the European software industry will rise to the machine and lead the world."

Commodore will be using existing Commodore Business Centres as a prime channel of distribution at the launch of the Amiga. Kaday says: "We intend to greatly increase the number of dealers and recruitment is now taking place.

"These things go in stages," says Kaday. "The first important thing is to ensure software availability. Secondly we need to set up good distribution channels.

"The way in which we support that in terms of marketing is important and will follow, but we feel that a channel of distribution and the product are the prime needs."

Kaday confirms that the main emphasis of the machine is going to be business applications. He adds: 'The MSDOS implications are important — it means people can use existing software plus the new and existing business packages designed to make full use of the facilities of the Amiga."

"The core of a system"

A number of previews are planned for the corporate marketplace which Kaday states is now developing commercially minded software opportunities. He says: "We feel that a fair amount of software may come out of that marketplace."

Describing the Amiga as 'the core of the system', Kaday foresees exciting opportunitites for the peripherals market.

"The Amiga is forging new ground," he says. "It will need new peripherals, for example colour printers.

"There is a definate need to be able to reproduce what you see on the screen as hard copy. There is a very good market opportunity for printers that match the quality of the product and we are currently in discussion with people in the printer field."

"A state of the art machine"

So the next appearance of the Amiga will be at the time of Compeq (for trade anyway). Commodore has good reasons for coinciding this preview with the show as Kaday reveals.

"Compeq is the show window for state of the art technology," he says.

"Amiga is a state of the art machine. We want people to look around Compeq and see what is there. They can then compare the Amiga in the light of what they have seen and gain appreciation of how advanced this machine is."

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Business Packages— PEGASUS

Up and Running — Software Test

We chose to test out the Pegasus packages on the PC 20 because they are some of the most widely bought by PC users and they offer a range very suitable to the smaller business environment. They are Sales Ledger; Purchase Ledger; Nominal Ledger; Sales Invoicing; Job Costing; Stock; Bill of Materials and Payroll. This test covers Purchase and Nominal Ledger (see subsequent issues of Commodore Business Magazine for the other packages).

When buying Pegasus packages — and this applies to much other business software too — you should realise that you almost certainly will need advice, help and guidance from your dealer, accountant or some other reliable source.

Failure to understand the system could well lead you into costly problems at a later stage. There are, indeed, a number of areas where you can save yourself the time and inconvenience of having to go back do something over if you ensure you understand the system well before putting it into full use.

What You Get

THE MANUAL. The Manual is a solid attractively presented document, divided into self contained sections for each of the packages.

Two points: first, it contains a generous sprinkling of useful illustrations — which you will actually see on the screen and second, the helpful use of highlighting in the text of matters that require decision or action. For example "set this option to 'yes'," followed by an explanation of the consequences of the action. Very useful.

The same format is followed throughout the manual's various sections. Two small caveats: it would be useful, where packages need to be integrated, for there to be a table which set out the available options in each of the packages, to allow you to appreciate the total system before ever putting fingers on the keyboard; and what is lacking is a pre-printed form for the recording of responses to questions in the respective parameter files.

Purchase Ledger

The whole system is menu-driven with three levels.

Level 1 is for the applications you have purchased eg Sales Ledger, Purchase Ledger, Nominal ledger etc.

Level 2 is the options within the application eg Ledger Processing, Period End etc.

Level 3 is the individual processing of items. eg a/c name and address update, ledger postings etc.

All the applications have a parameter file which is the most important part of the system — the manual tells you how to set these up in a clear and concise manner. Once completed supplier information can be entered, this includes up to 4 characters for the account code, 6 lines of 30 characters each for name and address, 17 characters for comments eg telephone number etc, credit limit, 2 digit code for analysis (supplier type, region etc) and whether it is an open item or balance forward account.

As an alternative to the "comment" information it is possible to record settlement discount information.

All the prompts are boxed and clearly labelled to provide a highly presentable screen to complete.

Posting to an account is carried out via a single program — no complicated invoice posting, cash posting programmes — just the one but with a few options to take into account that you may be using other Pegasus packages such as JOB COSTING and/or NOMINAL. A simple invoice posting could therefore update a contract and nominal ledger all in one go.

Invoices can be analysed within the ledger to a four digit analysis code, this combined with the two digit code in the name address set up — allows a considerable scope for analysing information.

The standard reports are sufficient for most requirements and include day book listings of invoices and credit notes, payment and adjustments, suppliers status ie a reverse statement, aged creditors but split over current, 1 month, 2 months, 3 months+, code list with names and addresses and a one-figure outstanding ledger report.

All reports can be screened, printed or stored for later printing ie spooled.

In addition the report generator will allow a considerable flexibility in formating and presenting all the reports.

Conclusion

The Purchase Ledger is a good solid basic accounting tool which should endear itself to those businesses which do not have complicated requirements. It could do with some refinements such as a payments requirements report with precalculated settlement discount but for most purposes this can be taken off the balance costings (except the discount information).

Nominal Ledger

For the average small business the Nominal Ledger would be part of a number of packages being purchased perhaps sales and purchases ledgers to be integrated with Nominal. Accordingly your dealer or accountant would advise you on the best way to set it up.

The menus follow the familiar pattern with Level 3 taking you to the operational program.

Level 2 includes the familiar parameter file set-up without which the package will not function. It also includes an "Analysis of Sales and Purchases" program which brings across Sales and Purchase transactions if either of these have been integrated into the Nominal.

Setting up the nominal accounts is easy always provided you have decided how to arrange the ledger in the first place, the account No. is the usual 4 characters (if integrated it must conform to the same function as in P/L or S/L).

There are 30 characters for name, room for a budget amount and a special reporting code.

Postings are carried out via: 1. Direct Journal which must be self balancing. 2. Special Journals for prepayments and accruals which are automatically posted to the appropriate double entry account set up in the parameter file. 3. Automatically from sales and purchase ledger.

The standard reports include list of transactions, trial balance, list of accounts all to screen, printer or spooler.

In addition the system will produce profit and loss balance sheet for current period or period to date in a two column format. Don't expect to be able to do this without some advice or reading through the manual. From a practical point of view it is sometimes better to define your report structure before allocating account numbers. That way you will get what you want and fully understand the system.

Conclusion

One refinement would be for the description on the Purchase Ledger transactions to be carried over into the Nominal Ledger.

All in all the Nominal Ledger holds true to the Pegasus tradition of solid reliable basic application code without the bells and whistles.

TOP BUSINESS PACKAGES

June – July – August

PRODUCT	COMPANY
Pegasus	Pegasus
Lotus 1-2-3	Lotus Development
WordStar	Micropro
Symphony	Lotus Development
WordStar Professional	Micropro
Multiplan	Microsoft
Datamaster	Sapphire Systems
dBase III	Ashton-Tate
dBase II	Ashton-Tate
Supercalc 2	Sorcim/IUS
Multisoft	Microsoft
Delta	Compsoft
Multimate	Multimate International
Wordcraft	Dataviews

Pegasus is the highest-selling package overall in terms of units sold.

Symphony does not give as good a showing here as it did in July. On the other hand, Lotus 1-2-3 has done better. Datamaster is the top-selling database, but is second to dBase II and III when these are counted together.

Multiplan is the top spreadsheet, while WordStar Professional is ably backing up WordStar itself, which has a solid share.

Source: Context Business Microcomputer Information Service

A Shift In Memory

Caxton has got a good name for importing high quality PC products from the States, and Memory Shift is no exception.

It's one of those programs which annoys me — why didn't I think of it? Designed to run on a PC with 128K or more (practically you need at least 256K), what it does is basically turn your PC into a Multi-processing machine.

Memory Shift (at £125) allows you to load up to nine programs concurrently into memory. Having done so you can use each program individually, then jump from one to another. I must state, however, that it does not turn your PC into a multitasking machine. If you leave a wordprocessor in the middle of a print run, and jump into a spreadsheet, the printing will stop.

For someone who needs to change from one program to another all day it will prove to be a godsend. Even with a hard disk, loading Lotus 1-2-3 takes a while, and if you then want to use a desk diary utility you must drop Lotus, reboot the DOS, and then load the diary.

Personally it means I can have several versions of XCHANGE loaded at once, with different articles in each one, saving time on loading as well as information retrieval. If you use a spreadsheet, you could have different data in each segment, and chop and change.

Memory Shift is a very neat, well programmed utility; if you buy it you'll wonder how you ever survived without it!

Contact: Caxton Software Ltd, 10-14 Bedford Street, Covent Garden, London WC2E 9HE. Tel: 01-379 6502.

On-line Word Processor

Telewriter is a relatively new program from Bristol Software Factory. Originally designed to run only on the IBM PC, it has recently been slightly modified, and now works perfectly on both Commodores — the PC10 and the PC20.

Described as an 'Online Word Processor' it manages to combine a host of features that you would not expect of a package with such a definitive description.

Basically it is a Word Processor/Text Editor; none of the major WP functions are missing; and indeed it is one of the most simple and comprehensive Word Processors I have seen recently. However it is not this which makes Telewriter stand up as a product of unrivalled potential.

Used in conjunction with a modem, and any of the huge variety of electronic mail or information services — such as Telecom Gold, One-to-One, The Source or Compuserve, it turns these useful databases into something that can represent a vital time and money saver.

Telewriter allows you two major functions, when used in conjunction with mail; firstly you can create a document, fully edited and layed out, and send it to any mailbox. This means that you no longer have to worry about the quality of message that arrives at the other end, instead you know it will look exactly as it did on the screen. Secondly, and perhaps more importantly, it allows you to read your incoming mail into Telewriter, and then edit any aspects of it you wish. Spelling mistakes and line noise can be removed, and any major changes can be done using the comprehensive Editing features of Telewriter.

One example of when Telewriter could play an important role in your business is using portable computers. If you have salesmen or reporters on location keeping notes on what they see; they could send these to your mailbox, where you could collate them into a more presentable form for your use. Using Olivetti's M10, I can vouch for the usefullness of this possibility.

If, however, you find yourself using Information bases such as The Source, you will know how untidy and unpresentable spooled files can look. Using Telewriter, you could make this information presentable and useable in a matter of minutes.

As well as these functions, Telewriter is extremely useful if you do any programming yourself. It allows you to load programs in a variety of languages, and then edit them. Although this is most useful for lengthy programs, even the beginner could benefit from being able to move sub-routines from one place to another without any dramas.

Overall Telewriter is a high quality program which provides a wide variety of essential functions within easy reach and, if you use a modem, Telewriter can prove totally indispensible.

Contact: Bristol Software Factory, Thornton House, Richmond Hill, Clifton, Bristol BS8 1AT. Tel: 0272 735022

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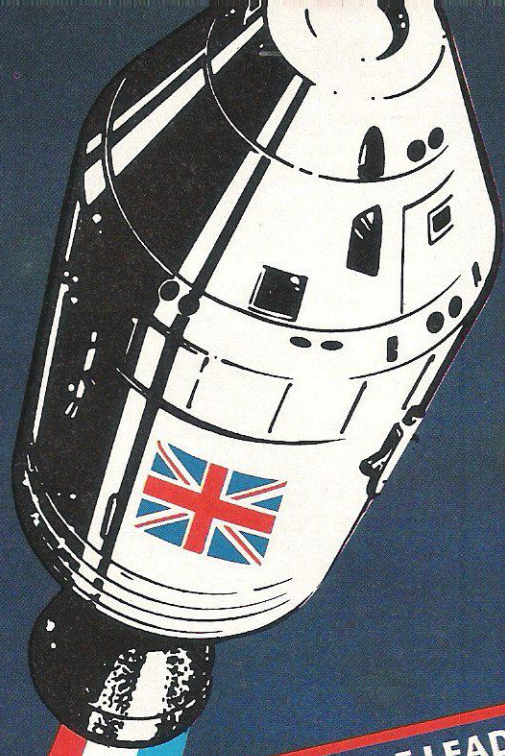

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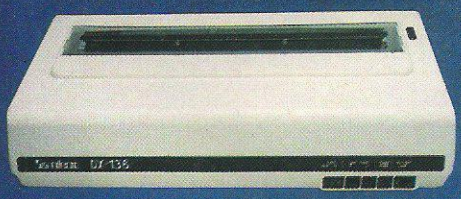

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Heavy duty, 120 cps, 132 col., 9 x 9 dot matrix printer with push-pull tractor for multi-part stationery.
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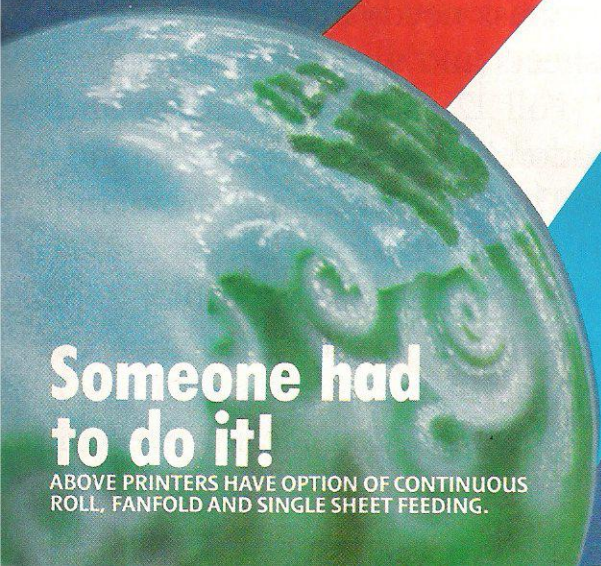

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The daunting task of choosing a business system becomes far more enjoyable when you consider the new Commodore PC's pedigree:

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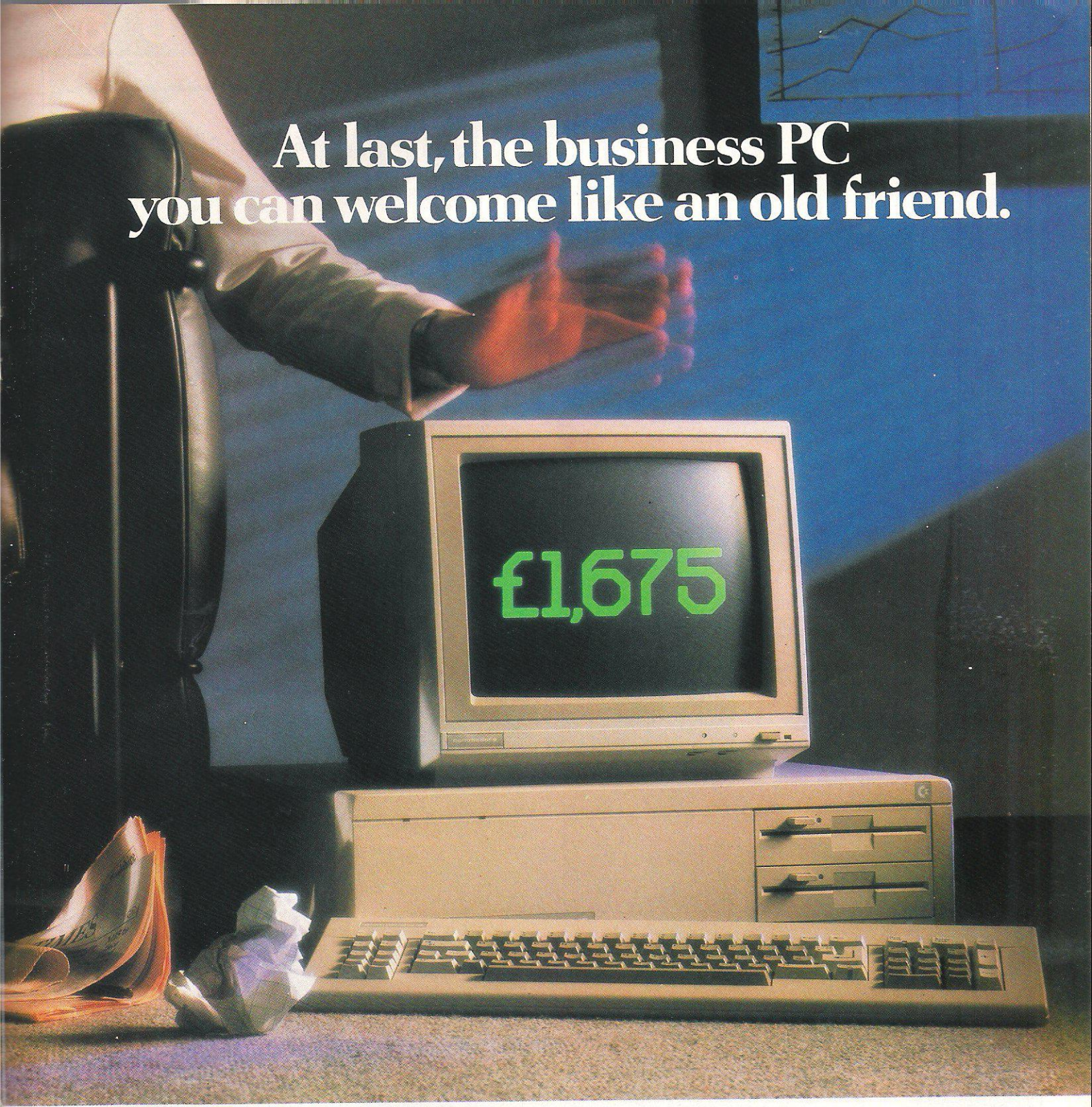
The basic specifications include dual 5¼" floppy disk drive, (hard disk version will also be available), 256K RAM, interfaces, a 16 bit processor, and the big 12 inch screen.

The price, considering this kind



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of pedigree is quite outstanding: £1,675.

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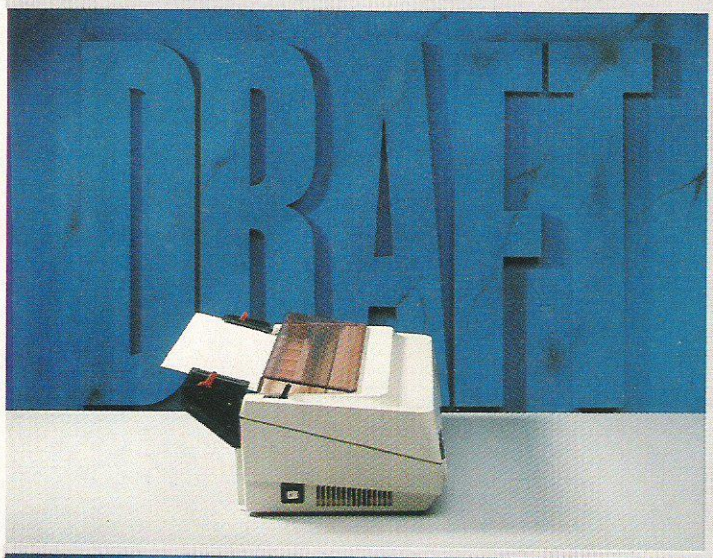
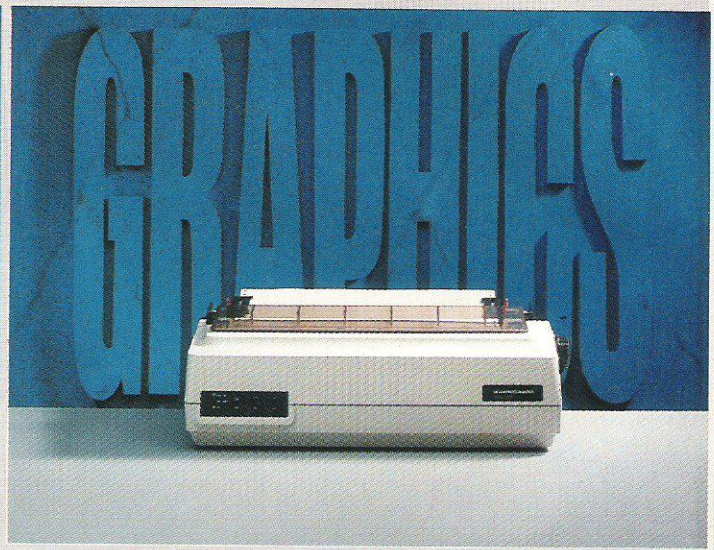
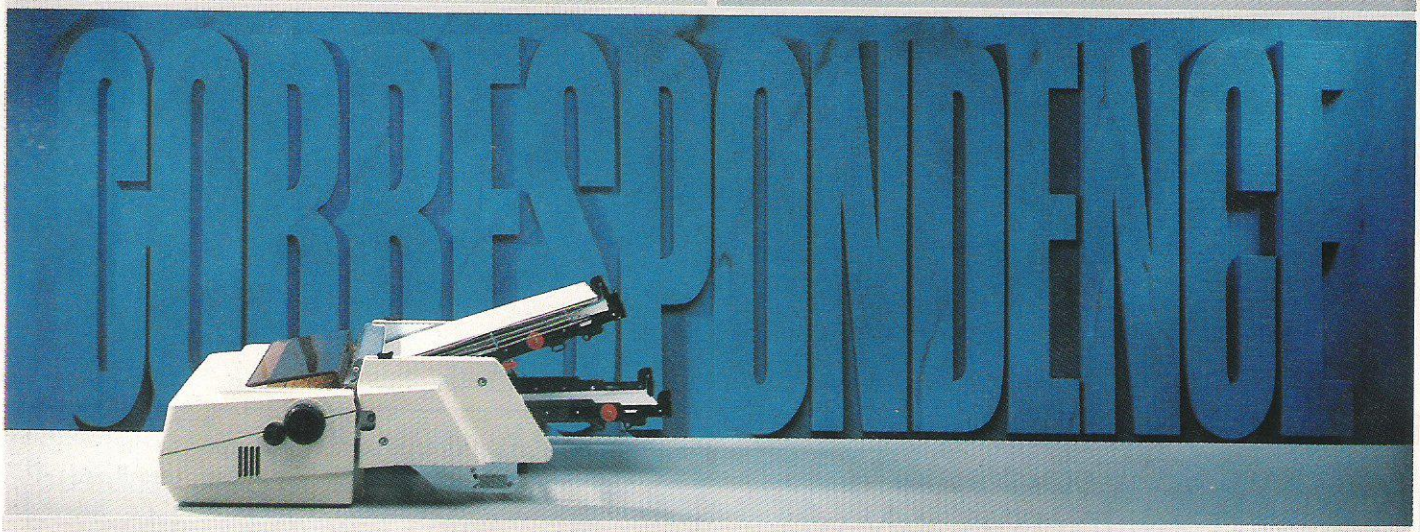
Three ways to look at the new MT290 printer







Whichever way you look at it, the new MT290 is a remarkable matrix printer. You'll find the answers to all your printing requirements in this one machine.

In draft mode it delivers clear, crisp text at 200 cps. In correspondence mode it generates high "letter" quality print at 50 cps. A variety of typestyles using optional plug-in font cartridges are also available. While the graphics mode allows a visual dimension to be added to reports and documents. So, here's the perfect printer for today's integrated business software packages.

Not only this, but the MT290's paper handling capabilities put it in a class of its own. Tractor and friction feed are standard. Then there's an optional twin tray sheet feeder for multi-page documents and an auto front feed for demand printing. The MT290 is both hardware and software compatible with most popular micros including the IBM PC.

End your search for the ideal professional PC printer with the new MT290 from Mannesmann Tally – Europe's leading matrix printer manufacturer. Contact us now for our literature pack.

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NLQ Printers

Francis Jago evaluates a selection of near letter quality printers compatible with Commodore's PC10 and PC20

With the huge variety of printers available, ranging from £5000+ probably the first major dilemma for any new PC computer owner is exactly which type of printer to purchase.

Although any businessman will think it essential to own a daisywheel printer, for producing letters of uniformly high quality, or reports for printed publications; in most cases a high quality dot matrix is good enough.

The new generation of NLQ (near letter quality) printers — led by printers such as Epson's LQ1500, and the Kaga-Taxan KP910 — can play an important role: giving the normal PC user a cheaper alternative to purchasing a daisywheel for text, and a dot matrix for graphics.

In this feature we will be exploring perhaps the most versatile and practical of all printers for the PC, the NLQ dot matrix.

The main differences between normal dot matrix printers and NLQ ones are in the way the print head actually hits the paper. In cheap dot matrixes, such as Epsons original MX80, the head consists of a 9×7 matrix of hammers which make one pass across the paper hitting through the ribbon to leave a rough graphical portrayal of the required letters.

An NLQ printer, however, uses a much larger print head (usually around 17×21) and makes two passes for each line of letters. By doing this the character can be much more clearly defined, with true-descenders and excellent clarity.

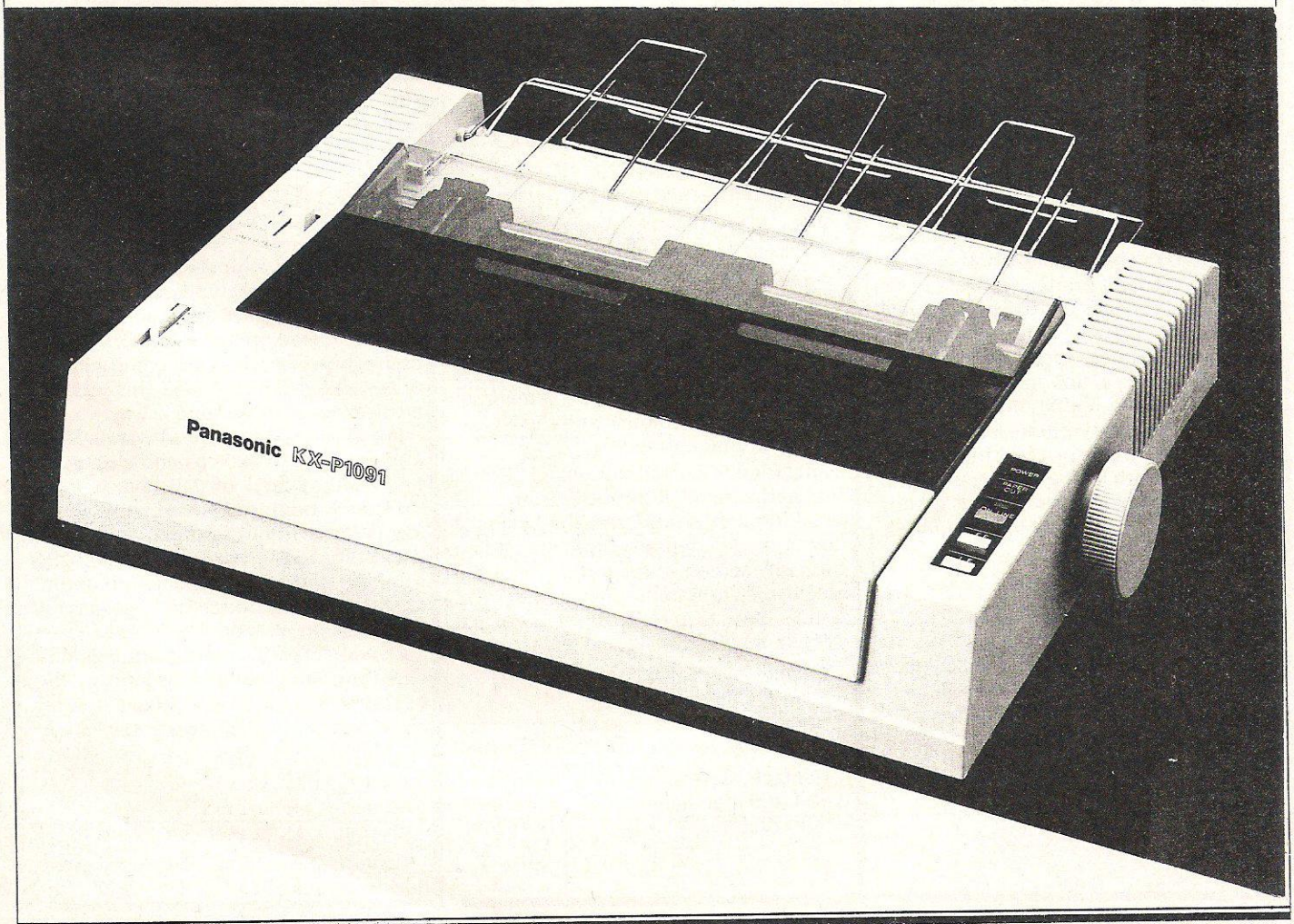
However, even the most expensive NLQ printers cannot hope to improve on the perfectly formed characters from a daisywheel.

Where an NLQ printer comes into its own is for producing reports from integrated software such as Symphony, where the ability to combine graphics with presentable text is essential.

Although using NLQ on a printer slows down the overall printspeed — usually by about a third — it still works out that the printers are much faster than comparable daisywheels.

The price differential between printers with similar specification is surprisingly large, but in most cases it is a question of speed, with some printers having a draft speed of 80 cps (characters per second), whereas others have speeds in excess of 400 cps.

A printer is, in my view, the most important peripheral for a PC, so chose with care. Think out clearly what you need your printer for, and finally, try it out! Any decent dealer should be willing to give you a demonstration of the printers of your choice, then you can decide.



PANASONIC KX-P1091

This is the cheapest printer of the the range we are looking at here. It is a compact unit, with all the essential bits incorporated, meaning no costly 'optional extras'.

It has reasonably fast speeds for its price; 120 cps (characters per second) in draft mode and 22 in near letter quality (NLQ). The type is nice, although it could be improved on.

Perhaps the nicest feature of the Panasonic is its ease of use — the cartridge is small and easily fitted, and the near letter quality is easily accessed by a neat front mounted switch.

Price: £366
Print Quality: xxx
Value for money: xxxx
Overall: xxx

Contact: Panasonic UK Ltd, 280-290 Bath Road, Slough, Berkshire SL1 6JG.

STAR SR-10

Star have a name for producing printers which, although not amazingly strong or overly decorative, are fast, reliable and cheap!

The SR-10 is no exception to this rule. With a draft speed of 200 cps it can really clear databases fast. Unfortunately the near letter quality lets it down a bit; not through lack of quality, but purely through the typeface chosen, which is oversquare and quite ugly to look at.

If you can get used to this, and the fragile feel of the machine however, it represents excellent value for money.

Price: £562
Print Quality: xxx
Value for Money: xxxx
Overall: xxx

Contact: Star Micronics U.K Ltd., Craven House, 40 Uxbridge Road, Ealing London W5 2BS.

OLIVETTI OPE DM 580

Unlike most of the other printers reviewed here, the Olivetti is suited to one purpose more than any other. With its totally accessible main PCB (printed circuit board), and multi-standard pre-programmed settings, it can print quite happily from almost any program. It doesn't matter if the program prints IBM standard, Epson standard or even Qume, the Olivetti has an easily reached switch on the top, to which allows you to choose in a matter of seconds.

It's print speeds are pretty respectable too, with 192 cps in draft quality 96 cps in near letter quality, and 40 cps in letter quality. To be truthful, however, their letter quality is still NLQ when put against everyone else's, but the inclusion of a midway, neat-but-fast is a useful touch for internal mail.

The Olivetti, however, is not cheap, and should only be considered if you think these special functions will prove of value to you.

Price: £1189 + VAT
Print Quality: xxxx
Value for money: xxx
Overall: xxx

Contact: Olivetti Peripheral Equipment UK Division, Olivetti House, 86/88 Upper Richmond Road, London SW15 2UR. Tel: 01-785 6666.

KAGA TAXAN KP810 PC

This newest printer from Kaga Taxan will succeed in continuing their very good reputation for cheap, but high quality, printers. Available both as a 10" and 15" carriage printer, it prints at the respectable speeds of 140 cps draft quality, and 24 cps near letter quality.

The NLQ is very nice, and, although still obviously a dot-matrix printer, it would do quite happily for all but the most important overdraft letters!

One little criticism is of the ribbon, which although of the cartridge type, is annoyingly fidgety, and involves getting ink on all but the most expert fingers.

Price: £399 + VAT
Print Quality: xxx
Value for Money: xxxx
Overall: xxxx

Contact: DDL, 5 Kings Ride Park, Ascot, Berkshire, SL5 8BP. Tel: 0990 28921.

CENTRONICS PRINT-STATION-250

This is the newest printer to be released by Centronics — so new, in fact, that this is one of the first reviews you will read! In many ways it is unfair to compare this with the others, as it is a full colour printer as well!

It has very respectable print speeds of 200 cps draft, and 50 cps near letter quality (in whatever colour), and the NLQ is really very nice indeed.

Included is a small but useful 2K buffer, and overall it represents quite a breakthrough, considering the quality of colour graphic reproduction. We had no difficulty setting it up, and some of the electronic functions mean that you hardly have to touch the insides, just press a few buttons!

Price: £995 + VAT
Print Quality: xxxx
Value for money: xxxx
Overall: xxxx

Contact: Centronics Data Computer (UK) Ltd, Petersham House, Harrington Road, London SW7 3HA. Tel: 01-581 1011.

SEIKOSHA BP-54201

This printer was undoubtedly the best. It had the nicest typeface, the fastest draft, the strongest case, and was the easiest to set up for the PC. All this praise, however, does not come without price, and at £1495 + VAT this was the most expensive by quite a way.

It's printing was a joy to watch. With a draft speed of 420 cps and a near letter quality speed of 210 cps, it fairly rockets through pages and pages of information, without so much as a moan. It's cabinet also manages to keep the printing noise down to a minimum, although the fan does tend to get annoying if left on all day.

Overall this is a superb printer, aimed fairly and squarely at a section of the business market where speed is a lot more important than cost!

Price: £1495 + VAT
Print Quality: xxxx
Value for money: xxx
Overall: xxxx (if you can afford it).

Contact: DDL, 5 Kings Ride Park, Ascot, Berkshire SL5 8BP. Tel: 0990 28921.

PC-compatible Printers

Thinking of buying a printer for your PC? For all the facts and figures read on for a selection of PC-compatible printers. More follows over the next issues.

Product	Features	Price	Company
Juki 6100	Daisy Wheel. Friction feed. Tractor and cut-sheet optional Max. paper width 13" Max. print speed 17 cps.	£399.00	P&P
Juki 6300	Daisy Wheel. Friction feed. Tractor and cut-sheet optional. Max. paper width 15½". Max. print speed 40 cps.	£899.00	P&P
Juki 5510	Dot matrix. Max. print speed 180 cps. NLQM.	£349.00	P&P
Juki 5520	As above. Also 7 colours.	£499.00	P&P
M1009	9 x 9 dot matrix. Max. print speed 96 cps. draft	£205.00	Jones + Brother
MP-165	17 x 17 dot matrix. Friction and Tractor feed Max. paper width 80 columns. Max. print speed 165 cps. draft. 75 NLQ	£269.00	Micro Peripherals
Canon A-40	Dot matrix. Friction and Tractor feed. Max. paper width 80 columns. Max. print speed 140 cps. draft. 27 cps. NLQ.	£299.00	Micro Peripherals
Shinwa CPB-80	9 x 9 dot matrix. Friction and Tractor feed. Max. paper width 80 columns. Max. print speed 100 cps draft. No NLQM	£229.00	Micro Peripherals
Canon LBP-8A1	Laser Printing. 8 pages per minute. Max. print speed 700 cps letter quality. Variable colours.	£2850.00	Micro Peripherals
Oki 182	9 x 9 dot matrix Friction feed Max. print speed 120 cps draft No NLQM	£365.00 Superspeed serial	X Data
KP-810	Dot matrix Friction and Tractor feed Max. print speed 140 cps. NLQM	£429.00	DDL
Seikosha BP5200 1	Impact dot matrix. Pin and Friction feed. Automatic cut-sheet optional. 4K buffer. Max. print speed 200 cps. draft 103 cps. NLQ.	£1095.00	DDL
BP5420 1	Impact dot matrix. Pin & Friction feed. 18K buffer. Max. print speed 420 cps. draft 104 cps. NLQ	£1495.00	DDL
Ibico LTR-1	Ink roller, friction feed. Max. paper width 8½" Max. print speed 12 cps. letter quality.	£119.95	Saga Systems
Riteman C+	9 x 7 dot matrix. Max. paper width 10" Max. print speed 105 cps. draft No NLQM	£240.00	C. Itoh

SG-10	9 x 11 dot matrix. Friction and Tractor feed. Parallel interface standard. Serial interface optional. Max. paper width 10" Max. print speed 120 cps. draft NLQM	£259.00	Star Micronics
SG-15	As above. 16k buffer	£389.00	Star Micronics
SD-10	9 x 11 dot matrix. Friction and Tractor feed. Optional parallel and serial interface. Max. paper width 10" 2k buffer Max. print speed 160 cps. draft. NLQM	£389.00	Star Micronics
SD-15	As above. 16K buffer. Max. paper width 15"	£489.00	Star Micronics
SR10	9 x 11 dot matrix. Friction and Tractor feed. Additional features like short forms, tear-off and single sheet insertion. Max paper width 10" Max. print speed 200 cps. draft NLQM	£489.00	Star Micronics
SR15	As above. Max. paper width 15" 16K buffer.	£589.00	Star Micronics
MT-290	Completely IBM PC & Epson compatible. 9 x 9 dot matrix. Max. paper width 15". Max. paper speed 200 cps. draft. 50 NLQ	£695.00	Mannesman Tally
MT-490	Max. print speed 400cps. draft 150 NLQ	£1845.00 incl. interface	Mannesman Tally
TRD 7020	Daisy Wheel. Block graphics. Completely Diablo 630 compatible. Max. paper width 13½"	£375.00	Triumph Adler
DMP-80	Tractor feed. Max. print speed 180 cps. draft. 36 NLQ.	£438.00	Triumph Adler
OSP-2	Dot matrix. Built-in sheet feeder. 7-colour changing mechanism. Takes A4 sheet horizontally. Max. print speed 200 cps. draft. 100 NLQ. RS 232 or centronics parallel interface	£1250.00 incl. colour ribbon and cut-sheet feeder	Newbury Data
OSP 8850	Two 9 needle print heads side by side. Max. paper width 15". Max. print speed 480 cps. draft. High density 320 cps.	£2200.00	Newbury Data
GLP 3101/4 3101/6	Dot matrix. 9 x 9 A4 paper. Max. print speed 50 cps. draft. 12 NLQ.	From £189.00	Centronics
Taxan KP-910	Dot matrix. Max. paper width 130 columns. Friction and Tractor feed. Max. print speed 140 cps. draft. NLQM.	£399.00	Strong Computers
FX-80+	18 x 12 dot matrix. 3K buffer. Single sheet and continuous feed. Max. print speed 160 cps. draft. Correspondence 32 cps.	£438.00	Epson
FX100+	As above. Wide carriage.	£569.00	Epson
JX-80	18 x 12 dot matrix. 3K buffer. Single sheet and continuous feed. Max. print speed 160 cps. draft. Correspondence 32 cps. Colour.	£560.00	Epson
LQ-1500	17 x 24 dot matrix. 2K buffer. Single sheet and continuous feed. Max. print speed 200 cps draft. Correspondence 67 cps.	£1100.00	Epson

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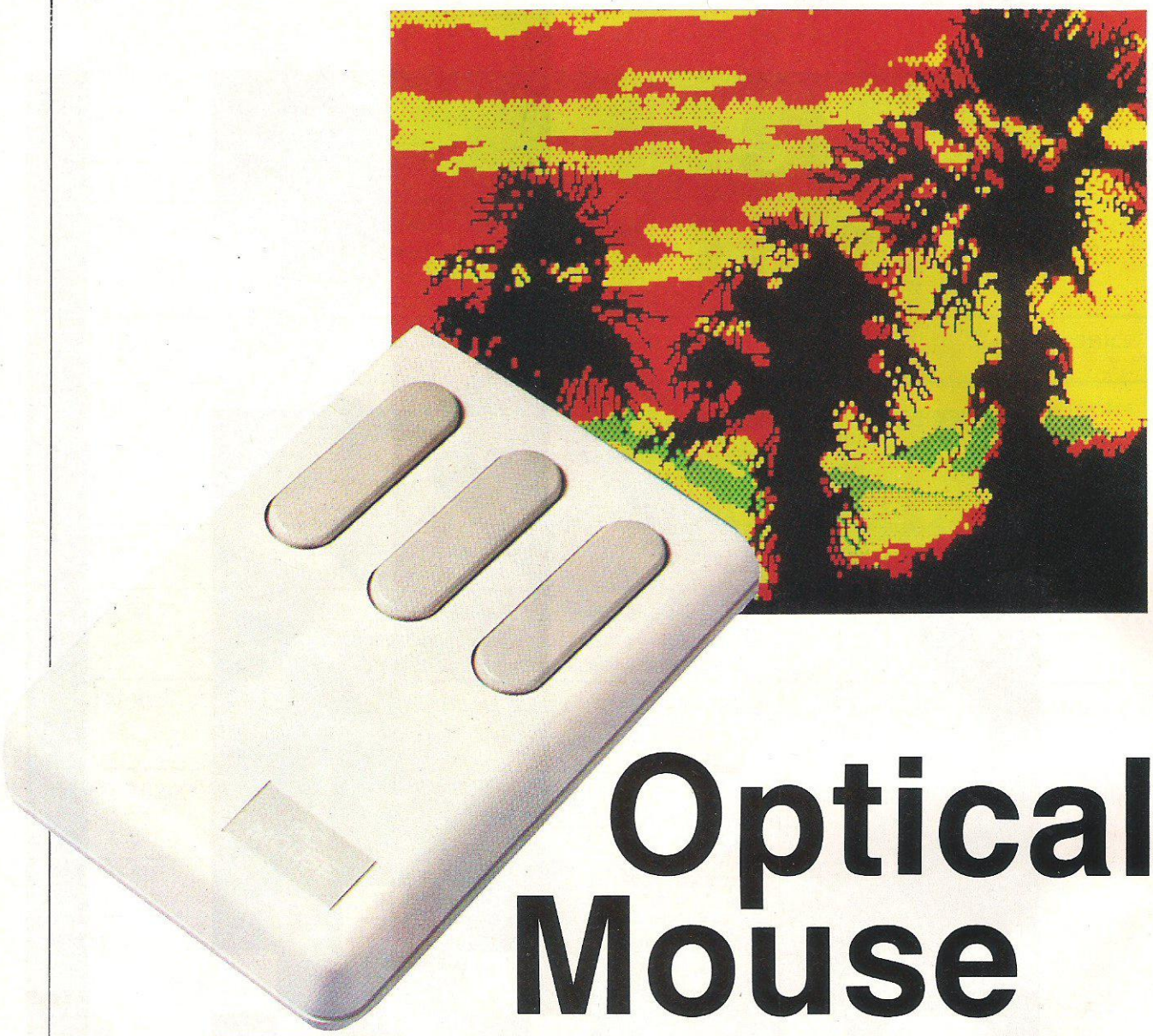

Optical Mouse

Data Design Technique's PC Mouse meets with a favourable reaction

It was not with a great deal of excitement that I greeted the news that I had to review a new mouse for the PC. Having used the Apple Macintosh I envisaged having to clear my desktop — and that was not an enjoyable prospect!

When I unpacked this mouse, however, I was greeted with a pleasant surprise; it was an optical mouse and therefore comes with its own 9" x 8" metallic baseboard which allows you to use the mouse almost anywhere. Personally I chose my knee, because it was the only place in the office not ankle-deep in printers (see feature)!

Being an optical mouse it also works in a very different way to the more usual "upside down trackerball". By shining a light onto the reflective surface of the baseboard it can tell how far and in what direction it has moved.

With the mouse you receive one disk's worth of software which covers setting up the mouse to working with certain programs, a neat mouse controlled version of patience, and various utilities. Having spent a good two hours playing patience (getting used to the mouse eh? Ed.), I can vouch for the fact that it's good fun.

After this I decided I had better get down to work. The first test of the mouse was to see if it would work with the brand new, and as yet unreleased, version of Lotus-Release II. Having set up the software, I loaded Lotus in, and sure enough the mouse worked perfectly.

I have always been a fan of mice, and this one was no exception, making movement much easier and, having defined a series of pop-up menus, speeding up the use of any of the predefined programs considerably.

In the next Business magazine I will be reviewing the PC Paint system in depth, but even before using that I can say that this mouse (at £162 plus VAT) is an excellent machine, certainly making a difference to the ease of use of a PC.

FJ .

Contact: Data Design Techniques Ltd, Unit 16B, Norman Way, Severn Bridge Industrial Estate, Portskewette, Newport, Gwent NP7 4YU. Tel: 0291 423781.

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It is exciting how many applications now support the Intel 8087 numerical data co-processor. Not just Lotus 1-2-3 and Symphony but Framework from Ashton Tate really sings when you add the power of this processor.

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Most major authors of application and development software such as Microsoft, Lotus, Ashton Tate, Autodesk, Digital Research etc, support the 8087 and in many cases are also releasing programmes that use the Intel/Lotus/Microsoft specification expanded memory boards.

Naturally, MICROWAY are able to supply these boards. We have more expertise than most as we have written the drivers for a number of manufacturers producing expanded memory boards.

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8087-2	**8-10MHz**	(Hi spec) Olivetti M24 SP	**£275**
8087-1	**10MHz**		**£340**
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Matrixpak	MS Fortran 3.2/87 Macro/87 Basic Inline	**150.00**
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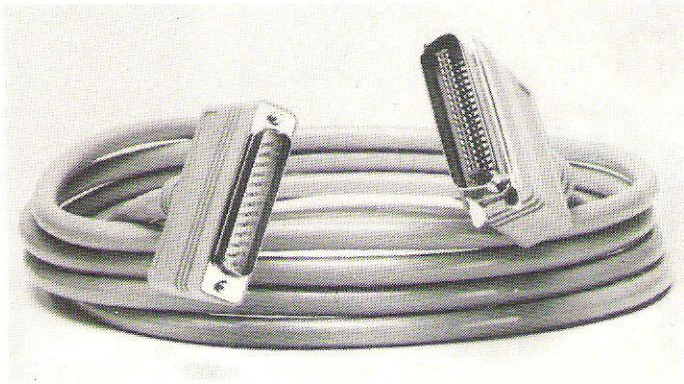

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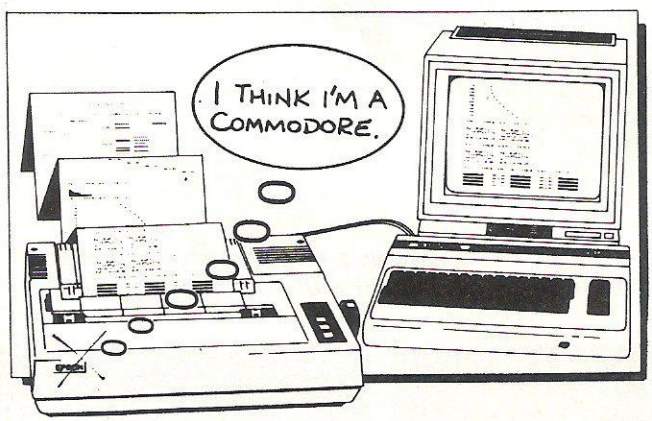
How many Commodore home computer owners, when faced with buying a printer, have longed to own an Epson but been put off by the problems involved? Firstly, it's not easy to connect the two together. Secondly, even when connected, it may be necessary to load driver software or the cartridge slot may be unusable. Finally Commodore-specific characteristics such as graphics and formatting commands will not be available.

Now Micro Control Systems have the solution. Just plug the Comprint circuit board inside the Epson, connect the cable supplied to the Serial I/O port on the Commodore computer and Hey Presto! The Comprint fools the Commodore into thinking it is working with a Commodore printer. All the features are there – total emulation. And it even provides a 2K buffer as well.

What's more all the additional features that have made Epson so successful, such as condenced print and other type styles, are accessible directly by the Commodore computer. For the business user the ability to use 15 inch paper (in the MX/RX/Fx-100 range) and print a £ sign (or other Epson special characters) will prove invaluable.

So go on – spoil yourself. If you are the owner of a Commodore personal computer treat yourself to an Epson – and a Comprint of course!



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"Presents excellent value for money... a worthy purchase for any Commodore 64 or VIC 20" – *PCN, January 12th, 1985.*

"This is one of the most versatile interfaces I have used... a combination that will do almost anything you ask of it" – *Commodore User, January 1985.*

"Undeniably an interface to look at" – *Commodore Computing Int., May 1985*

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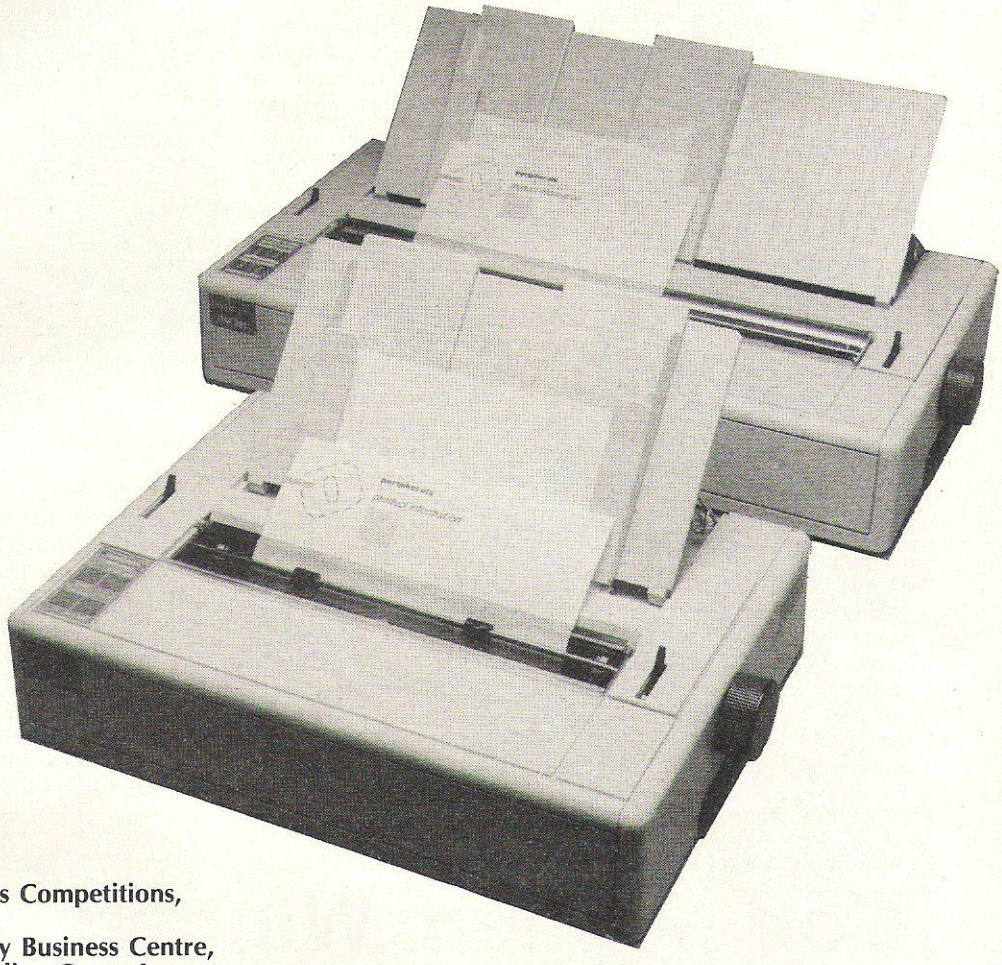
Win PC Printers!

This month we are offering business readers the opportunity to win two of Olivetti's PC-compatible printers absolutely free. On top of that, we are giving away 10 copies of "A Guide To The Data Protection Act" which, as you will see from the feature in this issue, is essential reading for all businessmen.



The Competition

Featured below are six examples of the printing quality of NLQ printers reviewed in this issue. Your task is to decide which printout came from each of the printers. For example if you think A is the work of the Centronics Printstation-250, write A in the space provided next to Centronics.

CLUE: Read the reviews in this issue in order to get a clue to the correct answers!

The Prizes.

Prizes will be awarded to the first correct entries pulled out of our competition sack.

There are two first prizes: The Olivetti DM290 and the Olivetti DM280.

Ten runners up will each receive a copy of "A Guide to the Data Protection Act."

Entries must be accompanied by your business card in order to be valid.

Entries must be received by 6 December 1985. Send them to: **Business Competitions, CCI, Finsbury Business Centre, 40 Bowling Green Lane, London EC1R 0NE.**

A	The quick brown fox jumped over the lazy dog!!??	☐	Centronics Printstation-250
B	The quick brown fox jumped over the lazy dog!!??	☐	Star SR-10
C	The quick brown fox jumped over the lazy dog!!??	☐	Kaga Taxan KP910 PC
D	The quick brown fox jumped over the lazy dog!!??	☐	Panasonic KX-P1091
E	The quick brown fox jumped over the lazy dog!!??	☐	Olivetti 0PE DM 580
F	The quick brown fox jumped over the lazy dog!!??	☐	Seikosha BP-54201

Name _____

Address _____

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Company _____

Data Protection Registrar

Under the Data Protection Act 1984, every company in the country which uses a computer to handle 'personal data' must register details of their operations with the Data Protection Registrar. The registrar will then make these details available for inspection by members of the public.

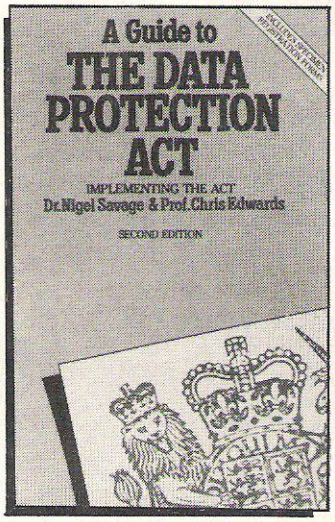
The Data Protection Act is concerned with information about individuals (personal data) which is processed automatically (ie in computer systems); with those who undertake the processing (data users or computer bureaux); and with the individuals to whom the data relates (data subjects).

The Act does not cover the processing of personal data by manual methods.

Although the effects of the Act are great, there still exists a lack of knowledge about the contents and requirements of the Act. The initial reaction from many companies is that it doesn't apply to them, but it does.

To reiterate, every organisation, partnership and company using a computer, (it's own or those of other organisations) to process information about individuals for business or professional purposes must register.

Applications for registration may be made from 11 November 1985 and must be lodged with The Data Protection Registrar not later than 11 May 1986. Failure to register by that date is a criminal offence. Be warned — penalties apply not only to companies, but also to the officers of those companies who may be considered responsible. Section 20 of the Act provides for the prosecution of "any director, manager, secretary or similar officer of the body corporate" where the offence is proved to have been committed with their "consent or connivance", or is "attributable to any neglect" on their part. Remember, in law, failure to inform yourself adequately can be construed as neglect!



Application forms and supporting notes for registration are available from Crown Post Offices and The Data Protection Registrar. The fee for registration has been set at £22 for a three-year period.

The forms have been carefully devised for ease of completion in an almost entirely 'tick off' format, but allowing computer users the flexibility of using their own text where appropriate.

Before filling in an application form, it may be necessary for your company to undertake a review of all information that is stored by computers. What is held, why it is held, what uses are made of it, and what use do others make of the data.

If you would like further information or advice on registering, contact your trade or professional organisation or contact the Registrar through the Telephone Enquiry Service — Wilmslow (0625) 535777.

Alternatively, consider purchasing A Guide To The Data Protection Act, at £9.95, from Financial Training Publications, 131 Holland Park Avenue, London W11 4UT. Written in layman's language by Professor Edwards and Dr Savage, the guide contains full details of the act, its implications and how to register. Also included is a full set of blank specimen registration forms and a set that have been filled in.

Competition Winners Announced

Over the last two issues of the Business Magazine we have given you the chance to win hundreds of pounds worth of hardware and software. Here are the results you have all been waiting for.

TAXAN/KAGA KP-90

The winner of this high-quality dot-matrix PC compatible printer is KJ Gardner of Salisbury, Wiltshire.

LOTUS 1-2-3 AND SYMPHONY

The winner of these excellent software packages is John Shepherd of Coventry.

TANDATA MODEM

The winner of the Tandata modem is R Sohal of Binley, Coventry who sent us the following caption for our PC10 and PC20 photograph:

"I'm glad Maxwell hasn't taken us over or we would be bingo machines!"

MASTERMODELLER

The giant amongst financial modelling systems

Recently, microcomputer spreadsheet and modelling programs have revolutionised financial modelling. But none of them could rival the power of mainframe modelling systems which have evolved over the past two decades — until MasterModeller.
MasterModeller really exploits the power of modern 16-bit business micros, whilst providing the 'friendliness' which mainframe modellers never had.

Advanced Modelling: MasterModeller is powerful, interactive, fast, friendly, flexible and fun. 'Makes many of its competitors look positively ancient', Micro Decision. 'Takes the mystery out of modelling for the ordinary business user', Accountancy Magazine.

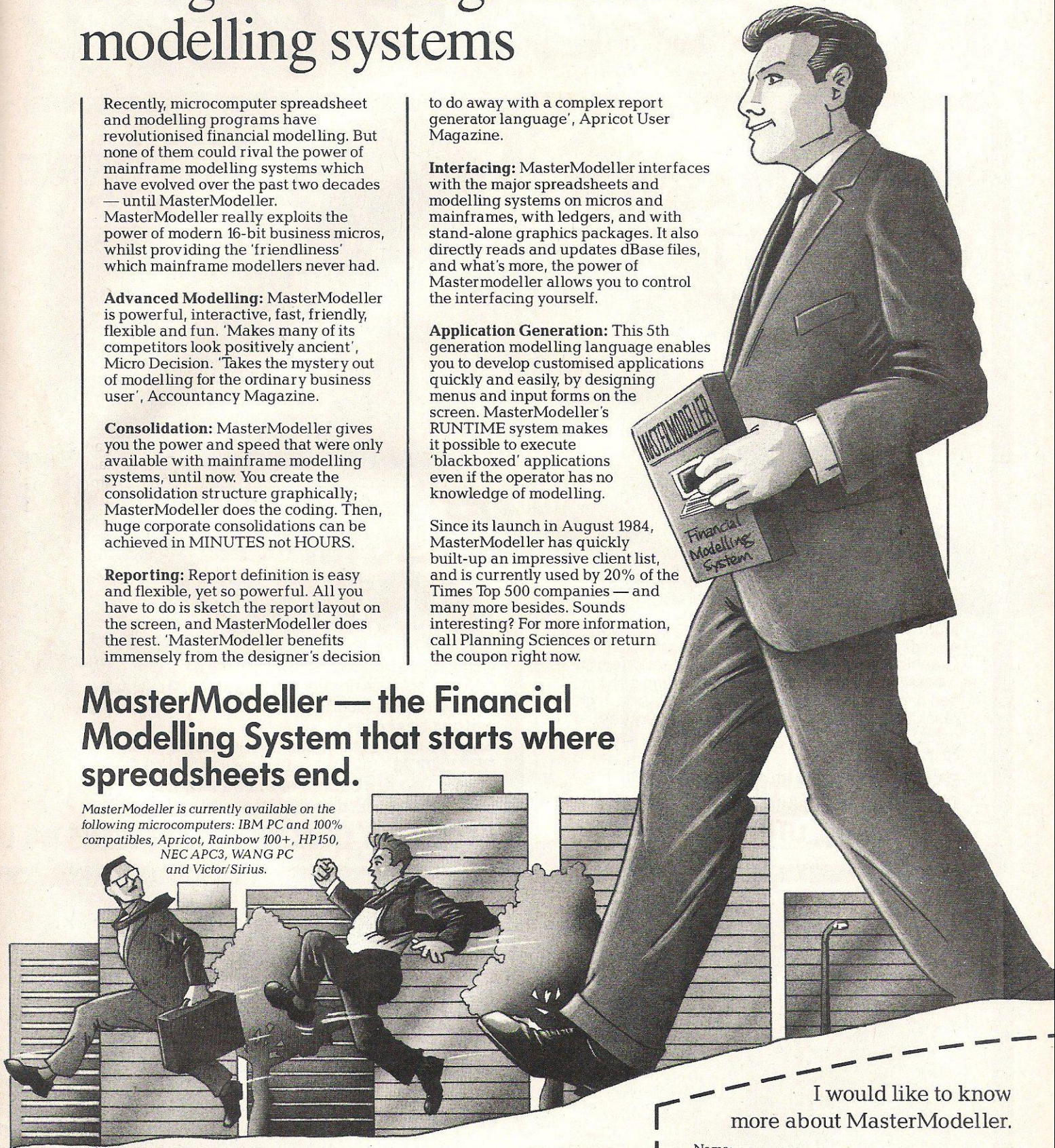
Consolidation: MasterModeller gives you the power and speed that were only available with mainframe modelling systems, until now. You create the consolidation structure graphically; MasterModeller does the coding. Then, huge corporate consolidations can be achieved in MINUTES not HOURS.

Reporting: Report definition is easy and flexible, yet so powerful. All you have to do is sketch the report layout on the screen, and MasterModeller does the rest. 'MasterModeller benefits immensely from the designer's decision to do away with a complex report generator language', Apricot User Magazine.

Interfacing: MasterModeller interfaces with the major spreadsheets and modelling systems on micros and mainframes, with ledgers, and with stand-alone graphics packages. It also directly reads and updates dBase files, and what's more, the power of Mastermodeller allows you to control the interfacing yourself.

Application Generation: This 5th generation modelling language enables you to develop customised applications quickly and easily, by designing menus and input forms on the screen. MasterModeller's RUNTIME system makes it possible to execute 'blackboxed' applications even if the operator has no knowledge of modelling.

Since its launch in August 1984, MasterModeller has quickly built-up an impressive client list, and is currently used by 20% of the Times Top 500 companies — and many more besides. Sounds interesting? For more information, call Planning Sciences or return the coupon right now.



MasterModeller — the Financial Modelling System that starts where spreadsheets end.

MasterModeller is currently available on the following microcomputers: IBM PC and 100% compatibles, Apricot, Rainbow 100+, HP150, NEC APC3, WANG PC and Victor/Sirius.

MASTERMODELLER

Planning Sciences Ltd. Colonial House, 35 Church Road, Barnes Village, London SW13 9HQ
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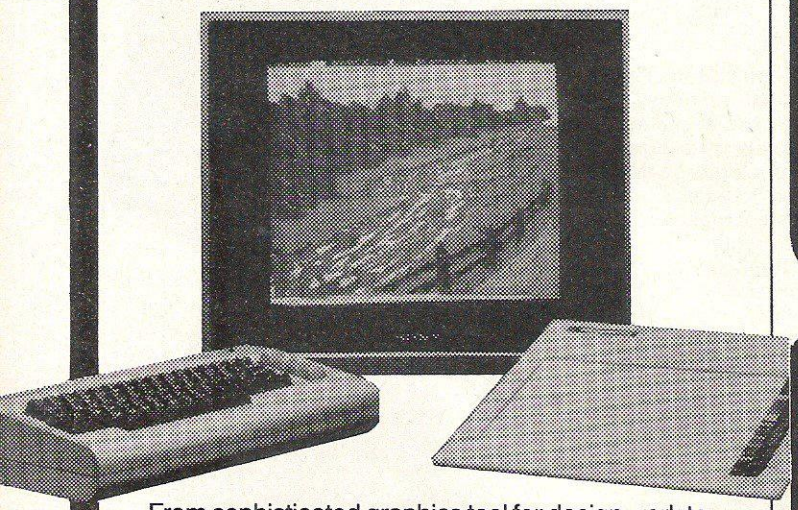

From sophisticated graphics tool for design work to a simple user-friendly interface to the computer. The Graphic Tablet is a pressure-sensitive device which is operated by any applied pressure, using a stylus, pen or pencil. It gives you a large working area, high resolution, accuracy, robustness and is very easy to use.
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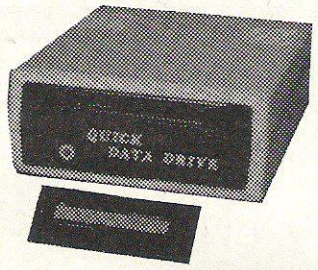

QUICK DATA DRIVE by Dean Electronics

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Super Fast

The Quick Data Drive offers loading speeds for the Commodore 64 15 times faster than a normal C2N cassette player. To load 64K using a C2N takes 20 minutes, a Commodore disc takes 2 minutes and a quick data drive 30 seconds.

star SG10C

Near letter quality printer for the Commodore 64. Plugs straight into the 64 or disk drive — cables are included in the price. 120 characters per second in draft mode. Fully compatible with all 64 software and graphics codes.
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3!

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MICRO MAGPIE is probably the most advanced database management system for any home micro.

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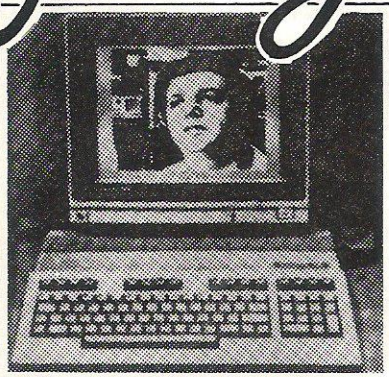
Send your order at once to avoid the end of year rush! To become a member of the CCI Readers Club, you simply add 50p for membership payment for any package you buy. *You make only one membership payment until 1986. You have no further obligations to buy any other product.*
Next month . . . some more exciting offers. !!!

from your Commodore



VIDEODIGITIZER MODULE FOR C64 and C128 BY PRINT TECHNIK

The Video-Digitizer module gives you the possibility to digitize video signals of whatever kind, to show them on the screen, to store or to process them and to print them out.
The applications of the the digitizer are unlimited. From a design point of view — digitized pictures can be used as graphics, their colours can be enlarged and printed out. You can even take a picture through a microscope, digitize it and with a special program count the number of blood cells or bacteria! The digitizer can be connected to any video-camera. Whichever way you use it you're bound to be pleased with the results.

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THE DIGITIZER EVERYBODY'S TALKING ABOUT

COMPRINT CIRCUIT BOARDS FOR EPSON AND KAGA TAXAN/ CANON PRINTERS

Solve incompatibility problems of these printers with the Commodore 64. Just plug the Comprint Circuit board inside the Epson or Kaga Taxan/ Canon printer, connect the cable supplied to the Serial I/O port on the Commodore and Hey Presto! The Comprint fools the Commodore into thinking it's working with a Commodore printer. All the features are there — total emulation and depending on the model provides a 2K or an 8K printer buffer as well.

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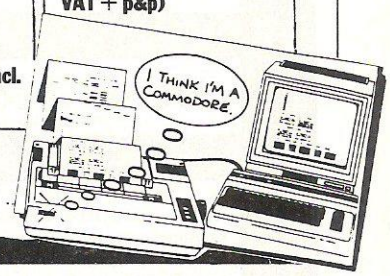
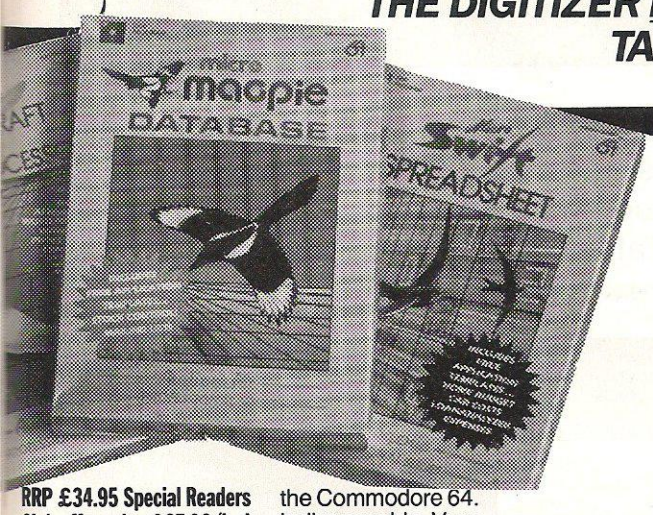
MAGIC!





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MICRO SWIFT is the affordable professional spreadsheet system for the Commodore 64. Indispensable. Very easy to use.
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- ☐ Quick Data Drive £39.96 (incl. p&p)
- ☐ Star SG10C Printer £246.28 (incl. delivery)
- ☐ Video Digitizer £124.80 (incl. p&p)
- ☐ MCS-2KEC (2K EPSON COMPRINT) £50.52 (incl. p&p)
- ☐ MCS-2KCC (2K CANON/TAXAN COMPRINT) £50.52 (incl. p&p)
- ☐ MCS-8KCC (8K CANON/TAXAN COMPRINT) £65.32 (incl. p&p)
- ☐ MCS-2KXC (2 STAND ALONE COMPRINT) £82.75 (incl. p&p)
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What all Seikosha printers share in common however, is an unbeatable combination of high speeds, superb quality printing (including NLQ), low noise levels and the most advanced multi-function features you'll find today.

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Take the BP 5420 for example.

Fast, quiet and designed for heavy duty use, it combines high speed quality print at 420 cps (draft) and 104 cps (NLQ) with an 18K buffer. For ease of operation all user controls, plus the selector switch for the 8 built-in fonts, are located on the front panel of the printer. Parallel and serial interfaces are standard.

Then, exclusively for the IBM PC and compatibles are the BP 5420I and BP 5200I.

The BP 5420I combines most of the features of the BP 5420 printer with all IBM characters, symbols and graphics as standard. The BP 5200I operates at 206 cps (draft) and 103 cps (NLQ) and represents one of the best value printers of its kind on the market.

Finally, the compact SP NLQ printer series meets the needs of smaller businesses.

Available from all leading computer dealers. Distributed exclusively by DDL. For details of your nearest stockists contact:

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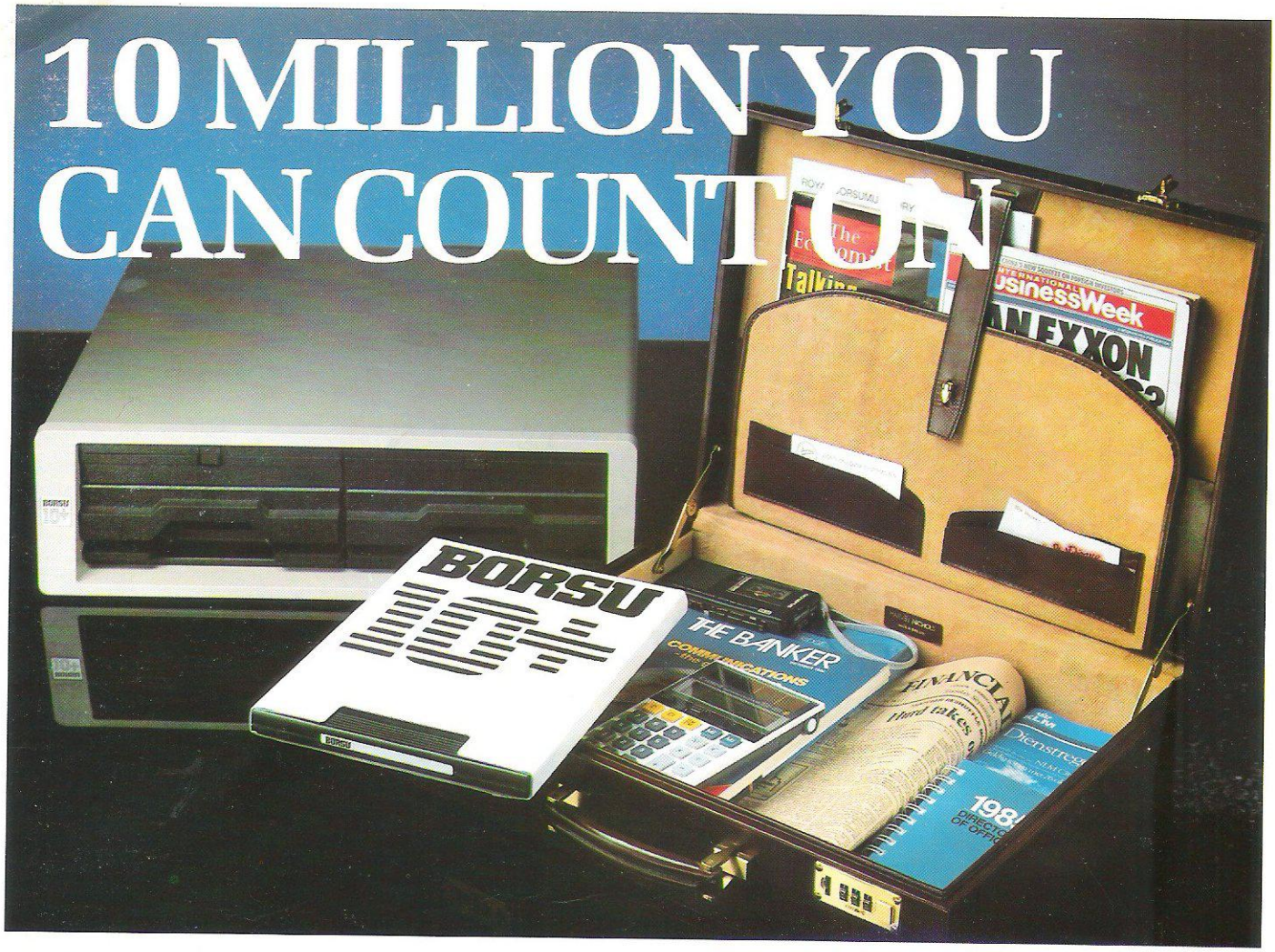

The BORSU 10+ exchangeable hard disc-drive with a minimum storage capacity of 10 million bytes.

THE BORSU 10+ interchangeable 20mb sub-system is solving the problem of many PC compatible users. It offers a unique combination of speed and high volume storage normally associated with hard disks with all the flexibility of floppy disks.

BORSU 10+ provides you with interchangeability, unlimited storage, fast back-up, reliability, security with ease of use. GIVE IT A TRY.

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BORSU INTERNATIONAL Ltd is part of the Royal Dutch Borsumij established for more than 100 years. Therefore back-up will be provided on an international basis to the level required by the business world.

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